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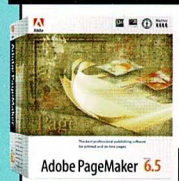

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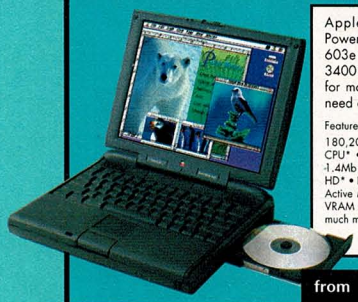
NEW MACHINES FROM APPLE

Apple PowerBook 3400



Apple's new range of PowerBooks offer the fastest 603e processors making the 3400 series the optimal choice for mobile professionals who need desktop performance.

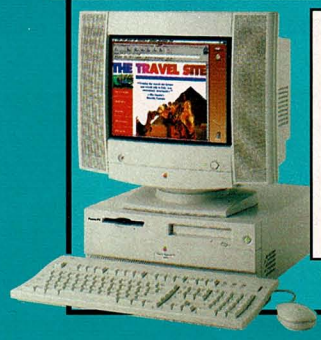
Features include:

180,200 or 240 MHz PPC 603e CPU* • 16Mb RAM • 256k L2C • 1.4Mb Floppy drive • 1.3,2 or 3 GB HD* • High Speed CD ROM • 12.1" Active Matrix Colour Screen • 1Mb VRAM • Expansion capabilities & much more!

*configurations differ between models

from **£2999**

Apple PowerMac 4400



Based on one of the fastest 603e processors, the new speed bumped PowerMac 4400 offers high performance and unbeatable value, making it an ideal choice for SOHO and educational users.

Features include:

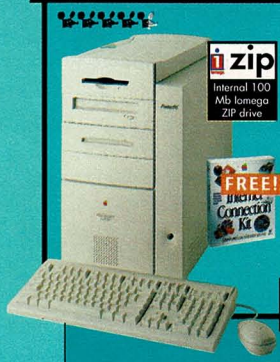
200 MHz PPC 603e CPU • 16Mb EDO RAM • 256k L2C • 1.4Mb Floppy drive • 1.2 or 2GB IDE HD* • 8x CD ROM • 1Mb EDO VRAM • Apple keyboard • Apple Mouse and much more!

*configurations differ between models

shown with optional monitor

from **£899**

Apple PowerMac 8600



Housed in the new K2 design tower, the 8600 is a true multimedia workhorse based on a 200 MHz 604e processor and offering excellent video, audio and graphics capabilities.

Features include:

200 MHz PPC 604e CPU • 32Mb RAM • 256k L2C • 1.4Mb Floppy drive • 2GB HD • 12x CD ROM drive • Internal 100Mb Iomega ZIP drive • 2Mb VRAM • Apple keyboard • Apple Mouse & more!

only **£2149**

Apple PowerMac 7300

The 7300 range are versatile systems based on fast 604e CPUs running at 166 or 200 MHz and offering high performance and expandability. An ideal choice for business and graphics users.

Features include:

166/200 MHz PPC 604e CPU • 16/32Mb RAM • 256k L2C • 1.4Mb Floppy drive • 2GB HD • 12x CD ROM drive • 2Mb VRAM • Apple keyboard • Apple Mouse • PlainTalk micrphone & more!

from **£1999**

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NEW model !

The NEW Power Macintosh 9600 is the most powerful and versatile machine that Apple produce. Housed in the new K2 design tower the 9600/200 comes with a 4Mb IMS graphics card, 32Mb RAM expandable up to 768Mb and 4Gb AV HD. Bundled with the excellent 21" Mitsubishi monitor, this is an awesome system ideal for all high end requirements.

Features Include: 200MHz PowerPC 604e • 32 Mb RAM • 4GB AV Hard Drive • 12 speed CD ROM Drive • 512k L2 Cache • 4Mb IMS Accelerated Graphics Card • 2 front access expansion bays •Apple Keyboard and Mouse • Mitsubishi Diamond Pro 91TXM monitor • Apple Internet Connection Kit & much more!

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MACFORMAT
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The Finder

Reviews A-Z

Your easy index to products reviewed in this issue

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ClickWorks 1.0	84
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Sci-fi on the small screen with *SFX•CD*. Page 103.

Apple's new PowerMac range is unveiled. See page 26.

Can you save the *Titanic* and become a hero? Page 110.

Gil Amelio prepares Apple for the battle ahead. Page 22.

Buyer's Guide

The Chooser 121

The authoritative buyer's guide, with advice to help you choose wisely, hot product news and a special report on after-sales support.

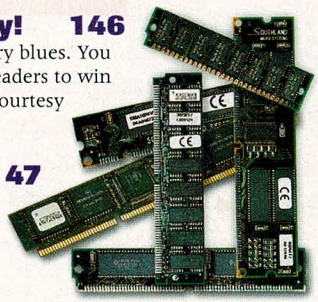
Free Reader Ads 142

Pick up the best bargains in our Mac marketplace. Software, hardware and everything in-between!

Win! Win! Win!

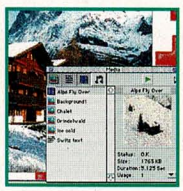
£1,000 of memory! 146

Say goodbye to those memory blues. You could be one of four lucky readers to win £250 of memory upgrades, courtesy of Performance Direct.

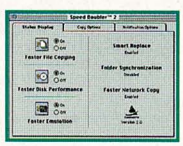


HoTMetaL Pro v3 47

This is your chance to win one of three HTML editing packages and get creative with your own Web site!



Create your own multimedia with *ClickWorks* – it's beginner-friendly! See page 84.



Speed up your Mac with this nifty little program. Page 96.

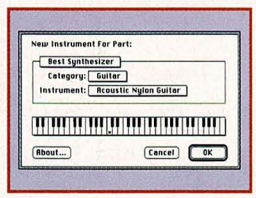
How to...

Use xRes 62

In MACFORMAT 47, we gave you a copy of *xRes 2.0 SE* to add to your image-editing collection. Find out more tricks of the trade here.

AppleScript 66

AppleScript is a master at automation, and with just a little coaxing it can make decisions for you. We explain step-by-step exactly how it's done.



Use QuickTime 69

Music is an essential part of life, and this issue, our QuickTime tutorial shows you how to face the music and turn your Mac into an all-singing, all-dancing machine...

Regulars

Welcome to MACFORMAT 7

Everything you wanted to know about MACFORMAT but were afraid to ask, plus components we'd mix.

Web highlights 20

All the links you require for getting to grips with OpenDoc and Java are listed here.

News 22

Apple gets tough, preparing for battle; Apple newcomers forge plans; MetaTools and Fractal merge.

What's New: product news 26

New Macs revealed; Live Picture launches new program.

Apple Talk: letters 28

Your chance to speak out about the Mac issues that really matter, plus Silly Things Your Mac Says.

MacAnswers 72

Mac problems solved this month include memory traumas, Internet queries and back-up hassles.

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Contacts 141

How to get in touch with us.

Classic System Crew 141

The Crew mix bits from one program with bobs from another.

Back Issues 144

If you did miss an issue, here's how to complete the set!

Next Issue 145

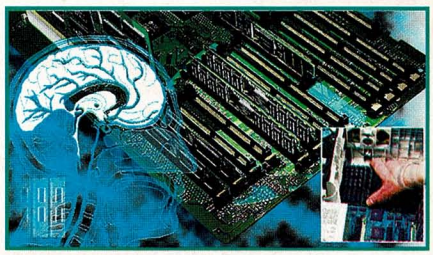
A very special celebration in just four weeks' time...

A piece of the action?

Component software

page 32

Could this be the way of the future? Not huge, RAM-guzzling applications but small programs working together within your documents, in combinations you select? Art programs with spell-checkers? Databases that update themselves automatically over the Internet? Try it for yourself!



Upgrade!

Memory upgrades

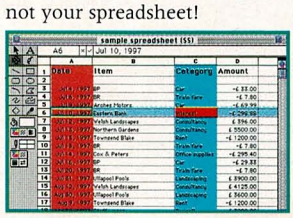
page 52

Everything you ever wanted to know about memory but... had forgotten. Find out how memory works, how to set up your Mac to get the best from the RAM you have, and how to add more if you need it!

A taxman calls

page 64

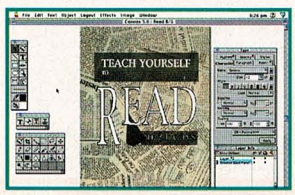
The end of the tax year means getting your accounts in order – but your *database* may be the best option, not your spreadsheet!



Canvas 5

page 78

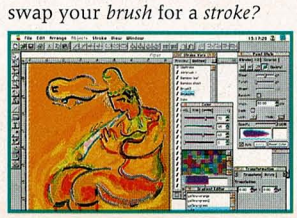
Got a deskful of software for all the page layout, drawing and image manipulation you have to do? Could one program do it all instead – and do it well?



Expression

page 82

A new art package that creates vector drawings with "paint"-like effects! Is it good enough to make you swap your *brush* for a *stroke?*



Reviews

Our reviews policy 77

Why you can trust a MACFORMAT review.

Productivity

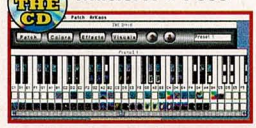
Canvas 5 78
Canvas 5 can lay out pages, create illustrations and manipulate images. Is this the ultimate all-round graphics software package?

Expression 1.0 82
Combining vector art with bitmap realism, Fractal Design's new drawing package looks like setting creative standards...

ClickWorks 1.0 84
Fancy creating your own multimedia with ease? This package shows you how.

Nisus Writer 5 88
We put the first OpenDoc-container word processor under the spotlight.

Music: X<>Pose 94



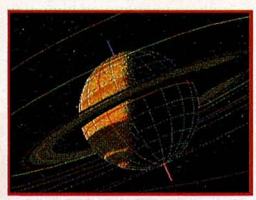
With this "visual sampler", you can add visual effects to your music. Cue flashing lights.

Speed Doubler 2 96
Want to make your Mac perform on another, faster level? Can this program do it for you...?

FBI Pro (SureSign) 98
Need to ensure that your work is secure? Can a digital watermark do the job?

Leisure

Multimedia 99



Space, the final frontier? It certainly is this issue, as we put astronomy and sci-fi CD-ROMs through their paces – see how they fare.

Solar System Explorer 99
Discover Astronomy 100
SFX•CD 103

Games 108

Heart-stoppin' action in this month's new games. Fly around, battle against evil, take a trip into a surreal world and then sail into the sunset...

Hind 108
Titanic: Adventure Out of Time 110
Rama 112
Warcraft II: Beyond The Dark Portal Expansion Set 114

Shareware Central 116

The latest catch of low-cost software, straight from the Internet (it's on the Cover CD too!).

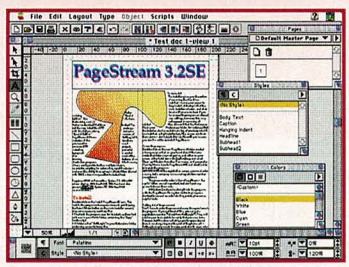
MACFORMAT Cover Discs

MACFORMAT is available in your choice of a CD-ROM or a high-density floppy disk edition every issue:

Your Cover CD-ROMs 8

Over a gigabyte of software on two CDs, featuring *PageStream 3.2 SE*, a *complete*, exclusive edition of this fantastic new desktop publishing package. Plus: all you need to try component software, demos of top games and programs including *Expression*, *Nisus Writer 5*, *ClickWorks*, *Hind* and *Weekend Warrior*, as well as a guide to RAM upgrades, 100Mb of shareware from the Net, plus everything below...

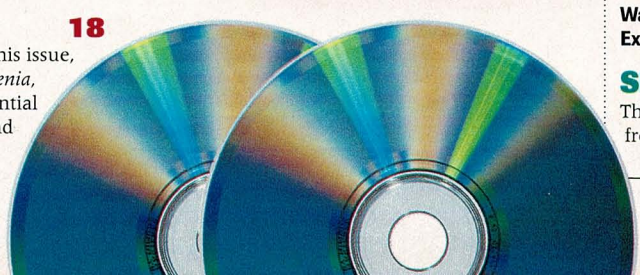
This logo in the mag indicates programs on the CD.



***PageStream 3.2 SE* – not a demo or save-disabled, but complete and free!**

Your Cover Disk 18

Over 3Mb packed onto the floppy this issue, including superb arcade action in *Xenia*, Desktop icons in *Insecticons*, the essential *File Buddy*, *Enemy Bomber Balloons* and *GURU*, the guide to RAM upgrades.



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Quadra
605, 610, 630, 650, 660AV, 700, Centris 610, 650, 660AV, 800, 840AV, 900, 950

Performa
200, 400, 405, 430, 450, 460, 466, 467, 475, 476, 550, 575, 577, 578, 600, 630, 5200, 5300, 5320, 6200, 6300, 6320

PowerBook
100, 140, 145, 145B, 150, 170, 160, 165, 180, 165C, 180C, 190, 190CS, 520, 520c, 540, 540C, 5300 Series, Duo Series, 1400 Series

Workgroup Server
60, 80, 95, 6150, 8150, 9150

PowerMac
4400, 6100, 6100AV, 7100, 7100AV, 8100, 8100AV, 7200, 7500, 7600, 8200, 8500, 9500

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30 Pin Simms from	£ 26	£49	£ 79	–	–	–
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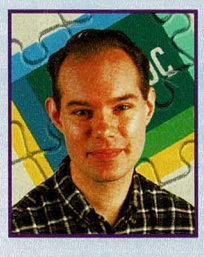
All prices are for business users and exclude VAT. Next Day delivery from £9 or 48 hour delivery from £5.50. Prices and descriptions are correct at time of going to press, but may change. E&OE. All orders are subject to our terms and conditions which are available on request. We may make our mailing list available to other companies, please let us know if you would like to be excluded. © Performance Direct 1997.

Welcome to MACFORMAT

Everything you wanted to know about MACFORMAT, plus the components we'd like to mix-and-match together...

About our writers



Richard Hill

Our Deputy Editor's guide to component software this issue is a revelation – no wonder, with his background in training. But it's not the future potential that seems to interest him just now. "With components increasingly being merged into the Mac's operating system," he says, "I'd like to incorporate the BFG weapon from *Doom* into the Mac OS, so that next time it crashes on me I can blow the whole damn thing away." Oh dear.

Lindsay Bruce

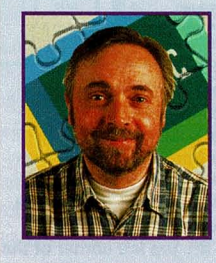
Our Technical Writer likes nothing better than pulling apart some new piece of kit, so naturally he wonders if hardware will go the component route. "Your next Mac could come in several pieces," he says, "rather like an MFI wardrobe and possibly with equally disastrous results. A whole new world of errors to contend with! 'Sorry, the application "unknown" unexpectedly quit because the processor could not be found...'!"

Brian Smith

Our new Disc Editor was thrown in the deep end with two CDs first time out! He's dreaming of "VNR (Virtual Net RAM). You're opening a billion-colour *Photoshop* document and you're about to run out of RAM. What do you do? Nothing! Your Mac knows it's running short of memory, so it dials into the Net to grab some from the Virtual RAM server. Switch back to your word processor and it reverts to your on-board 12Gb...!"

Derek Smith

Our technical expert works in the company's computer services department fixing people's Mac problems, so his view of life is a little... shall we say, warped? He says he's very excited about component software, because at last he'll be able to "have *Marathon's* aliens charging across the fifth green in *Links Pro* and teaching bloody Nick Faldo a lesson about clubbing."



Rod Lawton

Our "productivity software" specialist runs his own Mac-based writing and DTP business, so he's sharing his end-of-tax-year tips with us. "The perfect use for OpenDoc," he says: "a searchable database of 'factoids' that you can access within your word processor when writing school projects, business reports and even – gasp – magazine articles. © Rod Lawton 1997"

Alex Summersby
Editor

Welcome again to MACFORMAT, Britain's best-selling Macintosh (and Mac-compatible!) magazine.

With all the hype about computing technologies these days, it's hard to know what is genuinely new and promising, and what is simply window-dressing. This MMX technology that Intel is making all the fuss about isn't new – it was around ten years ago as "Single Input, Multiple Output" or something like that. It doesn't so much take computing into a new dimension as squeeze a bit more life out of an old technology – it's not so much rocket science as a Ford Sierra Cosworth. It goes like the clappers, but it ain't no BMW (to borrow the favourite analogy of Satjiv Chahil, Apple's recent marketing chief.

Component software – like OpenDoc and Java applets – is genuinely innovative technology. As this issue's eye-opening cover feature makes clear, it has the potential to revolutionise computing, with a whole new approach to software and the possibility of seamless integration of your desktop computer with the Internet in a genuinely useful and dynamic way. Just imagine a live news feed into an on-screen "newspaper", or a database that keeps itself bang up to date automatically. If component software can make good its promise, we could see a much bigger revolution than microchips that play music.

But don't you wish Apple could come up with TV adverts as stylish and amusing...?

About MACFORMAT

MACFORMAT is for you, the person who actually works at a Mac keyboard. Every issue we bring you:

- **Tips, techniques and tutorials** covering the range of Mac applications, from graphics, spreadsheets and databases to music, multimedia and games.
- **Features** about exciting Mac developments and novel uses, accompanied by software on our Cover CD-ROM and floppy disk whenever possible, so you can discover what your machine can do and try things you mightn't have tried before.
- All the latest Mac-related **news,** plus all you want to know about the wider issues, the people behind the headlines and the stories behind the stories.
- Authoritative, independent **reviews** of interesting and affordable products, with clear buying recommendations.
- **Cover Disks and CD-ROMs** with demos so you can try software for yourself before you buy, useful utilities (specially chosen to complement features in the magazine), selected shareware, games, readers' contributions and much more.

Whether you're a veteran or a novice, MACFORMAT will help you get more out of your Macintosh, whatever you use it for.

A word about prices...

We try to ensure that all prices quoted in editorial pages in MACFORMAT are accurate at the time of going to press, and they all *include* UK Value Added Tax at 17.5%. However, this may not necessarily be the case with prices appearing in advertisements, so we recommend that you always contact advertisers before ordering to confirm prices and availability.

■ We make every effort to verify all the information we publish, but products and prices do change. We always quote list prices (RRPs), but street prices vary. Shop around, and check with the supplier before buying to make sure that the product you're considering will meet your needs. MACFORMAT cannot accept responsibility for any errors or omissions or for any losses that may arise as a result, but it is our policy to correct any errors of fact whenever we can.

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Your bonus DTP CD

A world exclusive "Special Edition" of the newest Mac DTP package, yours free! Plus: samplers of a gorgeous new clip-art collection and a great map and earth-image resource! Alex Summersby is your guide.

How to install PageStream

Double-click on the **Install PageStreamSE** icon. This installs the program where you choose to put it (using the **Select Folder** button on the main installer screen), plus:

- The fonts the program uses for its interface (four font suitcases in your **Fonts** folder, containing the "Espy" font family)
- A folder called "SoftLogik" in your **Extensions** folder, containing several Library files
- On non-PowerMacs, the 68K Runtime Enabler and 68K Code Fragment Manager. *(See note!)*

After installation, restart your Mac.

To de-install

Launch the installer again, move your cursor to **Easy Install** at the top left of the installer window, and select **Remove** instead. If you've run the program or altered any settings, however, this may not succeed in removing all related files. (It won't find the Prefs file in your **Preferences** folder, for one.) But the installer also leaves behind a list of what it did, called **Installer Log File**, so you can track everything down yourself.

To run the program

Double-click on the new **PageStream 3** folder created on your hard disk. If the icons inside the folder are all jumbled on your screen, either hold down the **[option]** key and select **Clean up Window** from the **View** menu, or if you prefer **View by Name**. Find **PageStream 3SE** and double-click to launch it. Enter a name ***and the password*** (see opposite), hit **[return]** and you're into the program, with the **PageStream Navigator** visible to give you a shortcut to several starting points, plus some helpful hints.

Before you try to print

Before you select **Print**, go to the **File** menu and select the option just above it, **Print Setup**. Click on the button to the right of the **PPD** field. Use the dialogue box that pops up to go to the **Printer Descriptions** folder inside your **System Folder**, and select your printer (or the nearest equivalent you can find on the list). Select the right paper size too. Click on **Save** to make these settings the defaults, or **Use** to apply them to the current document only.

PageStream 3.2SE

What is it? Fully-working "Special Edition" DTP package
Mac: 68030
PowerMac: Any
Requires: System 7.1, 640 x 480 colour display, 6Mb free RAM, 7Mb hard disk space. (PowerMac, System 7.5, 8Mb free RAM recommended.)

Try out the very latest Mac DTP package with this fully-working, exclusive "Special Edition" version of *PageStream 3.2* from SoftLogik!

This is not just a demo – you can create new documents or edit existing ones, "place" (import) graphics in a variety of formats, format text, use all the powerful drawing tools, Save, Print... in short, use all the functions you need for everyday DTP projects. What's more, *PageStream* has a configurable toolbar, multiple Undo's, recordable scripting for automating repetitive tasks – and even the ability to use plug-in effects filters (shared with *BME*, a basic image editor included free).

Some "professional", specialised features have been removed from this version, such as AutoBackup and colour separations. But you can upgrade to the very latest version, *PageStream 3.3*, with a full manual and all features enabled, for a very special price – see page 19.

Important warning!

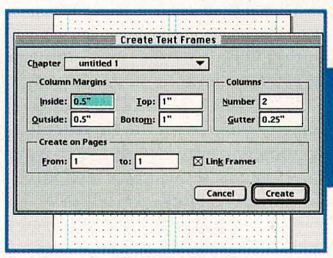
On non-PowerMacs, the *PageStream* installer installs the CFM-68K Runtime Enabler. Apple now advises that there is a serious bug in this Enabler which **could lead to files being erased from your hard disk.** Neither Apple, MACFORMAT, nor SoftLogik can accept any responsibility for data loss caused by installing the Enabler on 68K Macs.

Apple is working on a fix. The Web page **http://www.macos.apple.com:80/macos/cfm-68k.html** details the latest developments, and a free beta version of the bug fix is now available there, but it is not foolproof yet. We'll report as soon as the fault is fixed.

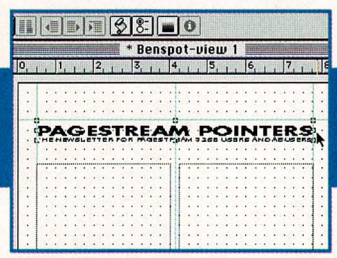
Getting started

To help you get to grips with the Mac's newest page layout program, Ben Vost guides you gently through a simple first project.

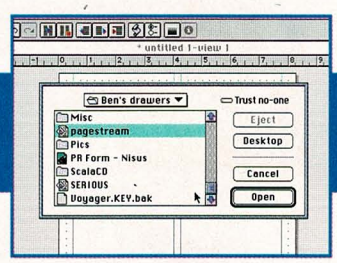
This will give you a glimpse of some of the astonishing power hiding within this easy-to-use program. We'll tackle another project next issue – but in the meantime, if you decide *PageStream* is the DTP package you've been longing for, turn to page 19 and learn how you can get hold of the brand-new updated version 3.3 at a very special MACFORMAT price!



1 **Open a new document, either in the Navigator or from the File menu. Make sure you're using A4 portrait – otherwise your printer will start asking you for all kinds of arcane paper sizes. The first thing you need on your page is a text frame for your newsletter's text. Go to the Layout menu, select Create Text Frames... and accept the defaults.**



2 **Click in the new text frame, then grab hold of the handle at the middle of its top edge and drag the top of the box down about an inch to make room for a banner. To create this, click on the Text tool, select a nice bold font, and click in the space above the text frame. Don't worry about the size of the text yet. Type in your headline but don't hit [return]. Select the null pointer, and resize the box so that it is the same width as your text frame. Go back to the text tool and click just underneath your banner box. Type your sub-heading. We scaled this to again fit under the banner, but this time we've deliberately squished it so that the letters are stylishly wider than normal.**



3 **You could now type all your body text into the main text frame, but let's assume you've received some from your foreign correspondents and import it instead. Select the Text tool and click inside the main frame so that the cursor shows up in the top left corner of the frame. Now hit [command] I or select Insert Text... in the File menu and locate a text file – if it's visible in the dialogue box, it's in a format that *PageStream* can import. The same applies to graphics – the program can handle PICT, TIFF, GIF, JPEG, Illustrator EPS and other common formats. To import a graphic, go to the File menu and select Place Graphic... or hit [command] L.**

Plunging into PageStream 3.2SE

Null Pointer
Used for selecting objects (either by clicking on them or click-and-dragging), moving them around, and scaling pictures using their handles.

Text tool
Placed inside a text frame, this positions the text cursor. Click outside a text frame to create a new text object, which you can resize later as desired.

Eye Dropper
A short-cut for picking attributes from objects and applying them to other objects. Not available in this version – you'll have to do it the manual way!

Object-creation tools
These create lines, boxes, rounded boxes, ellipses, arcs, and polygons respectively. The tool defaults are pre-set in this version, but you can constrain objects to regular shapes by holding down **[shift]** and even change the number of sides in a polygon in the **Edit Palette** at the bottom of the screen – more details next issue!

Drawing tools
Create line-drawn shapes and freehand shapes respectively.

The Toolbox
You can display this in several ways, selected in the **Preferences** screen.

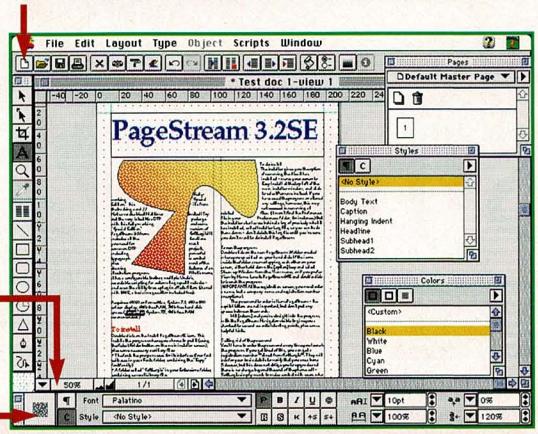
Reshape Pointer
For adjusting the points in an object to reshape it.

Crop Pointer
For cropping pictures – that is, resizing the bounding box but not the picture itself.

Magnifying pointer
Click to zoom in, hold down **[option]** and click to zoom out – or click at the point you want as the centre of your new view, hold down the mouse button and draw out the guides for the new screen size. In *PageStream* you can enlarge the image up to a staggering 3,000%!

Text frame tool
Creates a text frame on the page.

The Toolbar
You can configure this to give you quick button-click access to the functions you want – there are dozens of options. Go to the **Preferences** screen and select the **Toolbar** tab.



Magnification controls
Click on the button for a pop-up menu giving you quick access to common view magnifications, or click on the % figure for a "Custom Scale" dialogue box.

Edit Palette
Gives you control over many aspects of text, graphics or objects – changes according to what kind of item you have selected. You can show or hide the other palettes using the **Window** menu. More details on all these next issue.

Important! Password!

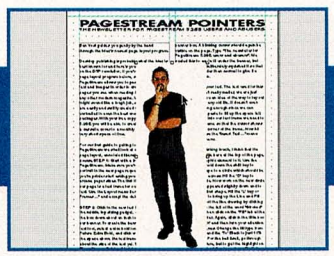
At the registration screen, **you must enter a name and password,** but a company name and registration number are optional. The password to enter is **ILovePageStream** – the capital letters are *not* vital, but don't put any spaces between the words.

***PageStream* is password-protected to help combat piracy and unauthorised use. You'll have to enter the password every time you launch the program.**

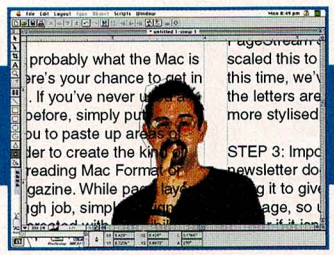
If you get tired of this, you can get a registration number which disables the password-protection. When you register, you'll be asked for your name, address and daytime contact details to verify that you are a bona fide user, but this does *not* oblige you to upgrade and there is no charge beyond the cost of the phone call, e-mail or fax.

In the UK, you can register by:
- phoning 01225 442244 (10 am – 6pm Monday to Friday) and asking for the MACFORMAT Reader Line, or
- faxing your name, address and daytime contact details (a return fax number would be handy) to MACFORMAT on 01225 732374, or
- sending an e-mail to SoftLogik: **support@softlogik.com**

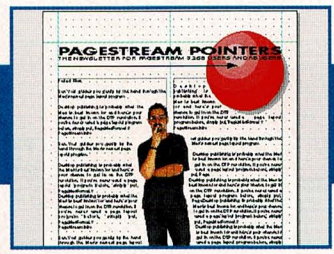
In the US or anywhere else in the world, you can register by contacting SoftLogik in St Louis, MO:
- phone: 1-800 829 8608 or 314 256 9595 (from overseas, dial your international call code, then country code 1, then 314 256 9595)
- fax: 314 256 7773
- e-mail: **support@softlogik.com**, or AOL: keyword **SoftLogik**
- Web site: www.softlogik.com



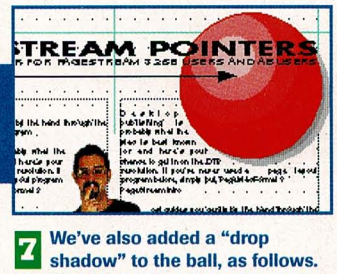
4 Now to wrap your text around the image. First crop and re-size it for the centre of your page. If the image you've chosen is a bitmap, the text wrap will only work around the whole image, so you need to make a clipping path that the text can wrap around. You can easily do this using the pen tool. Select it and click once near the area you want to start clipping. Zoom in if you want to and use the sliders to move around, all while using the pen tool. Made a hash of it? Just hit **[escape]** and start again. To finish the clipping path you just need to click back on your start point. Use the Reshape tool to get a better outline if you need to.



5 Make sure the picture is behind both the text frame and the clipping path, then hit **W** or select **Text Wrap...** in the **Object** menu. Select **both sides** and add an offset of 0.1. Make sure that **Shape** is selected, not **Bounding box**. If the text won't wrap around the clipping path you've created, play around with the stacking of the items using the **Stack** options near the bottom of the **Object** menu. Still not right? Select the text frame and make sure it has no fill in it by hitting **L** or choosing **Line & Fill...** from the **Object** menu and checking its Fill status. To remove that visible line in the shape, hit **L** again and click in the box to the left of the word **Stroked** until it is clear.



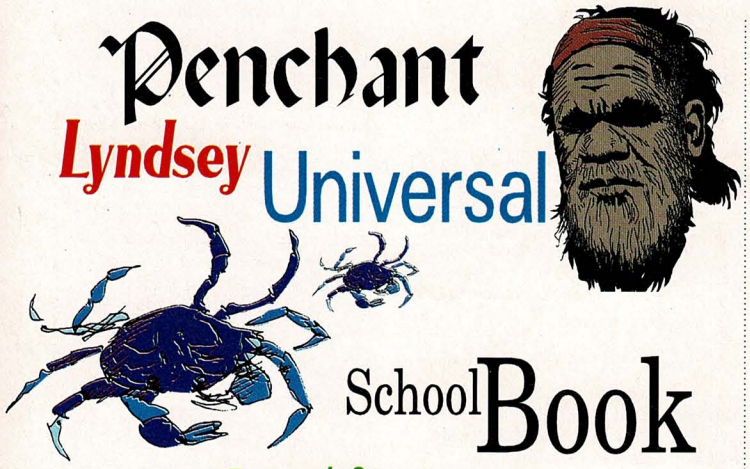
6 How about a graphic element at the top? Use the Ellipse tool and hold down **[shift]** to constrain the shape to a circle. Hit **L** or double-click on the shape to bring up the **Line & Fill** dialogue box. Remove its outline by unchecking **Stroked**, then click on the **Fill** tab. Click in the little box until you get an "x" in it. Then in the pop-up menu, change the Fill **Type** to **Radial**, and to get that highlight on the ball try these values: **From** White 100% **To Custom** 100%, **Linear** with a horizontal offset of –0.3 and a vertical of –0.5. To define your **Custom** colour, click on the button between the colour pop-up and the percentage – here, we've used 0%C, 100%M, 100%Y, 18%K.



7 We've also added a "drop shadow" to the ball, as follows. Hit the **D** key to duplicate the circle. Now work on the new circle, just as above. In the **Line & Fill** dialogue, turn off its **Stroke**, then change the **Fill** type to **Radial, To Black 10%.**

Finally, for the arrow under the title, simply click on the Line tool and drag out a line from left to right (holding down **[shift]** to ensure it's straight), then change back to the null pointer. Hit **L** and choose a heavier line weight, say 5pt. Go to the **Ends & Joins** panel and select from the amazing array of options – **Arrow1** for the end will produce a nice arrowhead pointing to the right. Let's see you do all that in *XPress!*

IMSI MasterClips



Rescalable vector clip art, TIFF and JPEG photos, fonts and animations – MasterClips has it all!

The MasterClips 101,000 Premium Image Collection for Macintosh is a brand new clip media collection from IMSI, boasting a breath-taking variety of vector art, photos, fonts, animations and video clips. This issue's bonus Cover CD includes an exclusive selection of 200 sample items from the IMSI MasterClips collection to give you a taste of the superb range and quality it offers.

The complete IMSI MasterClips 101,000 Premium Image Collection boasts 101,000 resources (hence the name...), including:

- 33,000 EPS images. Over 100 categories of fully scalable, high resolution EPS format vector clip art images, designed to print on black-and-white or colour printers. (The majority of items are in colour – and you won't find the same image being included in both a colour and a mono version and counted as two images, as you do in some other collections!)

- 40,000 TIFF images. 600dpi TIFF images from the famous Dover Publications collection.
- 2,000 TrueType fonts. A great range of fully-scalable fonts, including great business fonts, wacky seasonal and display fonts, and even 300 handwriting fonts to add that personal flair
- 22,500 JPEG photo clips, plus 3,500 professional quality JPEG photos in 16 million colours and at 240dpi. An assortment of beautiful colour photos and well-known moments in history, including The Beatles, Marilyn Monroe, the Hindenburg, plus war and disaster shots – some of the most popular subjects, and you won't find them so readily available anywhere else!
- A library of 20 video and animation clips, perfect for use in multimedia presentations.
- A collection of Web icons to liven up any Web site, including buttons, borders and arrows.

To help you find what you need in

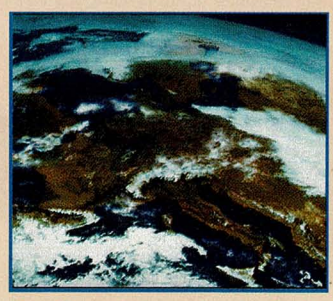
Terra Forma

Layers of information make it easy to focus on the details you want to use.

Terra Forma is a dazzling graphics resource for creating customised maps and earth images. When we reviewed it in MACFORMAT 36, it scored an impressive 90%, earning a MACFORMAT Classic Award. This issue's bonus Cover CD includes a gorgeous sampler and colourful "carousel" slide-show, giving you a taste of the full package, plus a sample map to try out, complete with overlays in both *FreeHand* and *Illustrator* formats.

The full *Terra Forma* package boasts everything you need to create stunning earth images and professional maps. It features beautifully detailed full-colour images and extensive cartographic information, from international and country borders to the names of rivers, mountains and other geographical features.

It's the work of mere minutes to customise a map or image, choosing from a variety of special effects, enhancing or altering the colours of physical features, selecting or amending data such as country names, and even incorporating your own text or line art. The images in *Terra Forma* contain "layers" of map and graphic data, so it's easy to isolate areas, and place names are stored as paths for easy size and colour manipulation.



***Terra Forma* features stunning Earth images that any designer or graphic artist will be sure to find useful.**

The *Terra Forma* range consists of five products:

- A WorldWide edition, featuring 83 full colour views of the world, with enhanced relief and extensive overlay options on five CDs.
- Three Regional versions, for anyone who wants to focus on particular areas of the world. (Region 1: North America, South America, and the Polar ice caps.

BETTLEJUICE COASTER Boston Fun Stuff

The 200 items on our bonus CD-ROM this issue are but the merest taste of the goodies in the collection!

all this cornucopia of clip-art, three hefty printed manuals are included. For just a taste of what MasterClips has to offer, explore our selection, organised into categories like those in the full collection.

For more information, contact IMSI Direct Sales on 0181 581 2000, fax 0181 581 2200, or e-mail **sales@imsiuk.co.uk**.

Special bargain offer!

As a MACFORMAT reader, you can order the complete *fourteen-CD* IMSI MasterClips 101,000 Premium Image Collection for Macintosh, direct from IMSI, at a special bargain price! The collection's RRP is around £82 (£69.95 + VAT), but you can get hold of a copy for the just £66.33 (special price of £49.95 + £6.50 delivery to your door in the UK* + VAT). That's right, just £66.33 for *fourteen* CD-ROMs crammed with 101,000 fantastic creative resources!

Just use the coupon to the right, or phone or fax IMSI Direct Sales and quote "MACFORMAT April issue".

Something for every occasion and any application.

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IMSI MasterClips 101,000 – special Macformat reader offer

Yes! Please send me the IMSI MasterClips 101,000 Premium Image Collection for Macintosh at the special price of just £66.33, including UK delivery* and VAT!

Send this form to: IMSI (UK) Ltd, IMSI House, Printing House Lane, Hayes, Middlesex UB3 1AP.

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* Delivery price applies to UK only. Readers outside the UK, please phone or fax IMSI for details of delivery charges.

☐ Tick if you don't want to receive details of other special offers

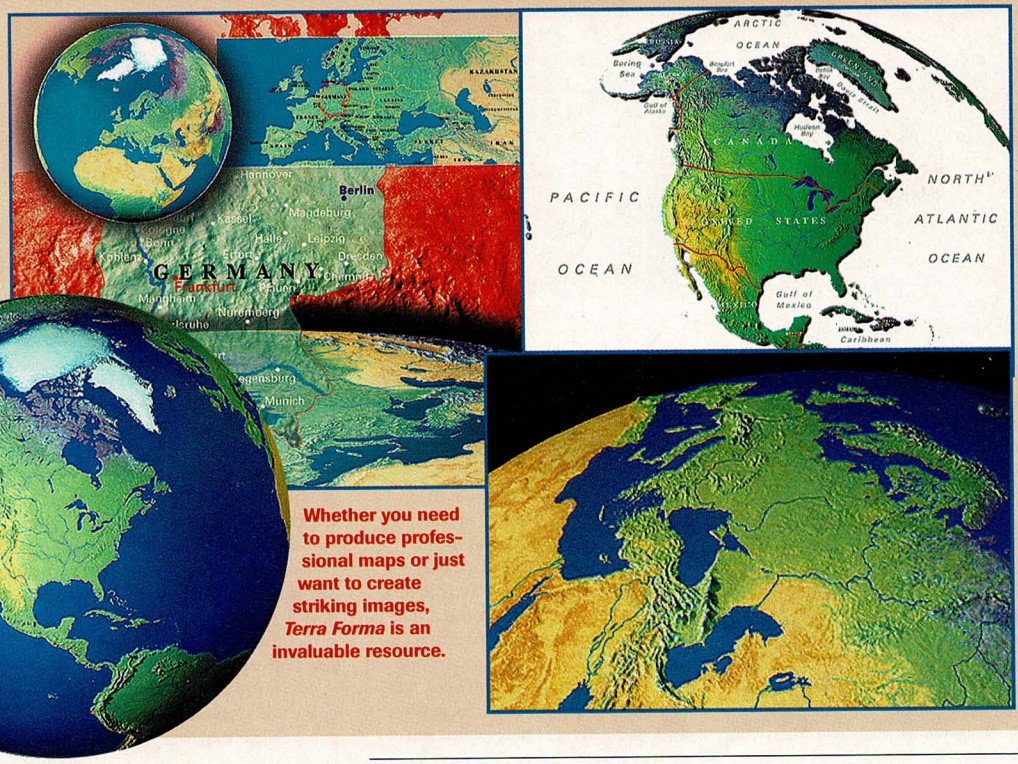
Your order will be processed immediately, but please allow 28 days for delivery

Region 2: Europe, Russia and the Middle East. Region 3: Asia, Japan, Australasia and Africa.)

■ A Global Images edition, including 17 full colour views of the Earth plus atmospheric halo effects, space backgrounds, six phases of Earth shadows, 17 meteorologically accurate cloud weather patterns, and even three sunburst effects.

Terra Forma requires *Photoshop 2.5.1* or above, *FreeHand 5.0.1* or above, or *Illustrator 5.0* or above.

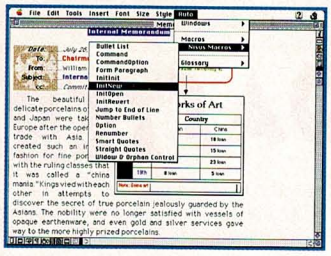
■ *Terra Forma* is available from leading dealers, or for more information contact Andromeda Interactive Ltd on 01235 527303, fax 01235 559122, e-mail **terraforma @andromeda.co.uk**.

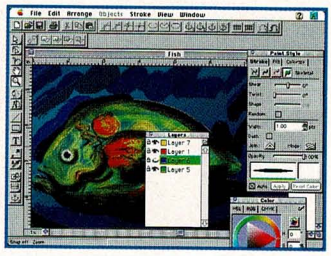


Whether you need to produce professional maps or just want to create striking images, *Terra Forma* is an invaluable resource.

Hind

Derrat Sorcerum


Nisus 5


Expression

Your CD-ROM

Spring is in the air. Daffodils are blooming. Little lambs are frollicking. And Brian Smith has a suitable spring in his step – prepared to be dazzled with this month's CD...

Getting started

Welcome to the MACFORMAT 49 Cover CD. Here are some tips:

■ Some of the demos on the Cover CD require installation on your hard disk – they won't run direct from the CD. Many of these programs use an installer: once you've double-clicked on it, just follow the on-screen instructions and you should be fine. Even if there's no installer, it often helps to copy demos to your hard disk – at the very least they should run faster!

■ The icons we use on the CD folders help to give it a friendly atmosphere, but they do slow it down. Install *CDIconKiller,* which is in the Resources folder on the CD, if you want to speed things up.

■ If you have problems quitting any of the rolling demos on the CD, just press [command] Q and you should go back to the Finder. If this doesn't work, hit [command] [option] [escape] to Force Quit.

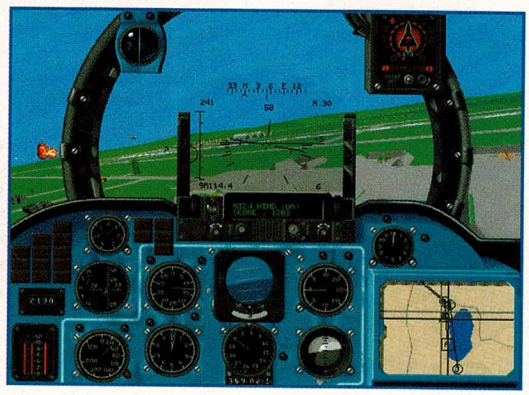
■ It couldn't be easier to install System Extensions and Control Panels – just drag them over your closed System Folder and your Mac puts them in the right place for you. Then all you need to do is Restart.

■ Look for this icon throughout the issue – it will point you towards the CD contents connected with the feature or review you're reading.

ON THE CD

Hind

What is it? Limited playable demo
Where you'll find it: Demos folder
Mac: PowerMac only
PowerMac: any
Requires: 32Mb RAM, System 7.5, CD-ROM drive.


Up, down, flying around, looping the loop and crashing into the ground! *Hind,* though, is a great game – once you master the controls...

Look out for that hill! Turn right! Now, which key should you press? Too late, you're dead. Okay, so if you don't have a joystick you'll probably find it hard to imagine yourself behind the controls of a real Hind – but it is worth persevering.

Like most flight sims, you need to have a love of aircraft to really get into this game. There are controls to learn, tactics to refine and distant polygons pretending to be aircraft to identify. But hang on a minute – what is this I see on the menu screen? An "arcade" mode, and better yet, invincibility. This makes up for the loss of real flight controls and the feeling of the wind in your hair. Of course, there are other benefits, such as not getting airsick or shot at – a good deal.

For a full listing of keyboard controls, open **Demo ReadMe** in the installed **Hind Demo** folder.

To Install

Double-click on **Hind Demo** and follow the on-screen instructions.

Derrat Sorcerum

What is it? Limited playable demo
Where you'll find it: Demos folder
Mac: any
PowerMac: any
Requires: 4Mb RAM, System 7.

Derrat Sorcerum is a role-playing game viewed in the third-person. You play Corin, an apprentice mage who is trying to pass his Journeyman test so he can become a true wizard. The demo enables you to explore the Crimson Tower, the home of magic in the land of Naridor, where you get to mix potions and cast spells. The graphics are suitably atmospheric, with shadowy corridors leading to dusty libraries and huge banqueting halls.

You control Corin using a set of icons at the bottom of the screen. By highlighting an icon and then clicking within the main view, you can operate items, walk around or cast a variety of spells. Corin's inventory can be accessed in the same way – just click on the bag icon and select the item you want to use in the pop-up list.

For a full explanation of the game's history and controls, consult the on-line manual.

Corin is late for tea again. Now he'll have to get a takeaway.

To Install

Copy the *Derrat Sorcerum* folder to your hard disk.

Component software

What is it? Component software elements
Where you'll find it: Component Software folder
Mac: see note below
PowerMac: any
Requires: System 7.5 and 16Mb RAM.

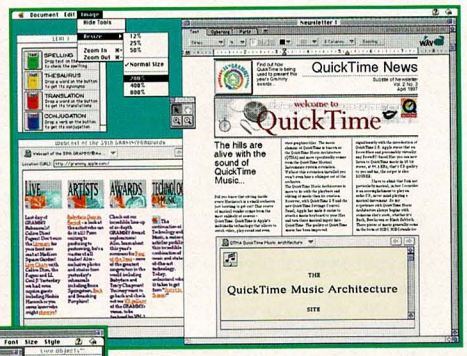
This collection of OpenDoc and Java software provides all you need to try component software for yourself. You can read more about this subject by turning to our feature, beginning on page 32 – or for more information about specific programs' System requirements, take a look at the appropriate ReadMe files on the CD.

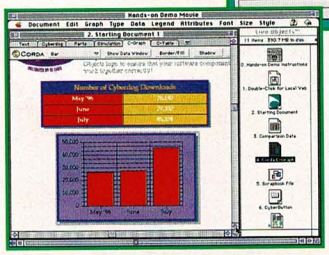
To Install

First you must install **OpenDoc,** which is located in the **Live Objects Demo** folder. Double-click on the installer and follow the on-screen instructions.

Any guesses as to what is included in this component-crammed screen? Give up? It's *Wav* containing *Apple Image Viewer, Cyberdog* and *Lexi.*

A hands-on demo movie is provided to help you find your way around the OpenDoc objects and containers.





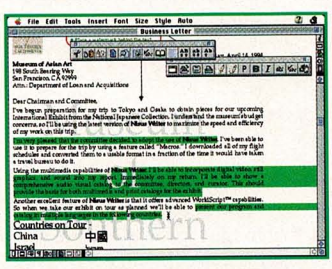
To install the other elements, double-click on their installers or check the ReadMe files for a guide to installation.

■ **WARNING:** although a non-PowerMac version of OpenDoc is included on the CD, an Extension required by OpenDoc called **CFM-68K Runtime Enabler** has a serious bug in it. *This bug could lead to files being erased from your hard disk.* Neither Apple nor MACFORMAT can accept any responsibility for data loss caused by installing OpenDoc on 68K Macs. It is safe to install OpenDoc on any PowerMac, as they do not use Runtime Enabler.

Nisus 5

What is it? Time-limited demo
Where you'll find it: Demos folder
Mac: any
PowerMac: any
Requires: 4Mb RAM, System 6.0.7

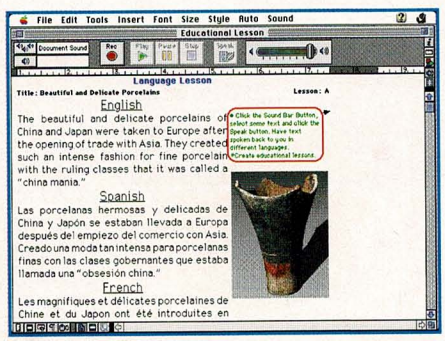
Although text editors are not the most glamorous software you can run on your Mac, they are vital for most serious users. *Nisus* has always provided a host of features to make word processing simple, and now it has added OpenDoc. This means that if you have installed OpenDoc and dislike any particular part of *Nisus,* you can install a "live object" to replace that function. For more information see our in-depth article on page 32.



One of *Nisus'* best features is the ability to select non-contiguous text.

If you're unwilling or unable to use OpenDoc, *Nisus* is still a fully functional word processor. Some of its most useful features include the ability to select non-contiguous text, quickly copy a tabs setup and use drag-and-drop text-editing. You can also create graphics and tables, which all combines to make *Nisus* a very professional and extremely useful program.

The demo is time-limited, but otherwise fully functional. A review of the full program is on page 88.



Each document can become a mini multimedia composition using the new palettes.

To Install

Double-click on the *Nisus* **Demo** installer and follow the on-screen instructions.

Print Artist 4

Sierra's *Print Artist* is an easy-to-use design package. Sierra has produced this special sampler of *Print Artist 4,* but as yet has no plans to release a full version. Take a look at the sampler in the Demos folder, then tell us if you'd like the chance to buy it. Write to: "Print Artist", MACFORMAT, 30 Monmouth Street, Bath BA1 2BW.

Also...

Weekend Warrior: A televised, on-stage battle with crocodiles, ratings and star prizes.
WarCraft II: Join in the epic fight with evil, ogres and dragons – and see the review of the *Warcraft 2* expansion set *Beyond The Dark Portal* on page 114.
Obsidian: Your chance to sample this great graphic adventure game, which is in a similar vein to *Myst.*

CD Index

Find exactly what you want using this folder-by-folder guide to this issue's MACFORMAT Cover CD.

System Updates
System 7.5.3 Revision 2 Update
System 7.5.5 Update

Internet Explorer 3.0
Complete and fully working World Wide Web browser from Microsoft with e-mail and newsgroup facilities.

Component Software
OpenDoc, Cyberdog and a collection of containers and live objects that will enable you to fully experience component software for yourself.

Demos
Arthur's Birthday ■ ClickWorks ■ dbsPay2 ■ Derrat Sorcerum ■ Expression ■ HighWater Demos: FBI Pro (SureSign) and Interchange ■ Hind ■ Nisus 5 ■ Obsidian ■ Print Artist ■ WarCraft II ■ Weekend Warrior ■ X<>Pose.

How-To's
Apple Scripts – all you need to follow this issue's AppleScript tutorial (which you'll find on page 66). RAM Upgrades – support utilities for the RAM upgrade feature (page 52). xRes 3 Demo Installer (tutorial on page 62).

Jonni Star Episode 4
The fourth instalment of our exclusive animated cartoon serial!

MacFormat 49 Floppy
Enemy Bomber Balloons ■ File Buddy ■ GURU ■ Insecticons Vol I ■ MultiTimer ■ Smart Scroll ■ Xenia

Readers' Corner
More great artwork and contributions from our talented readers.

Resources
Vital resources to make using your Mac easier. Acrobat Installer 3.0 ■ CDIconKiller 1.3.3 ■ Disinfectant ■ DOCMaker SW v4.7 ■ DropStuff 4.0 ■ GraphicConverter 2.6 ■ MACFORMAT CD Index ■ NewsWatcher ■ QuickTime 2.5 ■ ResEdit ■ ShrinkWrap 2.1 ■ SoftwareFPU 3.04 ■ Sound Manager 3.2 ■ StuffIt Expander.

Shareware Central
Alias Arranger 1.0 ■ Enigma 2.6.1 ■ FreeRamPlus1.0 UR ■ Galaxus (1.0.5) ■ GeoGenius World ■ HyperLaunch 1.11 ■ Internet Address Book 1.2a ■ MakeItGrow1.7.1 ■ MultiTimer ■ Planet Magazine ■ 11 & 12 ■ Pyramad v1.2 ■ Unlabel 1.0.7.

Shareware Plus
Over 100Mb of the very latest shareware straight from the Internet, arranged into categories.

System updates

What is it? New versions of the Mac OS!
Where you'll find it: System Updates folder
Mac: any
PowerMac: any
Requires: System 7.5

The Mac OS is constantly updated in order to implement new features, fix bugs and improve performance. New applications are often written for the latest version of the OS and may experience problems using older versions. The official UK updates provided on this issue's CD will enable you to upgrade from 7.5.x to 7.5.5. If you have System 7.5, 7.5.1, or 7.5.2 installed, then this will be a two-step process, as you must first install 7.5.3, and *then* run the System 7.5.5 updater. If you already have System 7.5.3 installed, you can skip to the System 7.5.5 install. The System 7.5.5 updater is multi-lingual, and will work on any European version of the System – so overseas readers can use it too. But for these updaters to work, you must be running System 7.5 or higher.

We strongly recommend that you make a backup of your existing System Folder before attempting to update your System. If you need to go back to the previous System version, this will make your life easier and safeguard your files. We also recommend that you install a clean System Folder from your original System disks or CD, and update from this version – some non-Apple Extensions can interfere with the update process. You may be asked to quit any applications you have open if you're installing the updates onto your start-up disk.

Why System 7.5.5?

System 7.5.5 offers numerous new features, bug fixes and speed improvements over previous incarnations of System 7.5. These include:

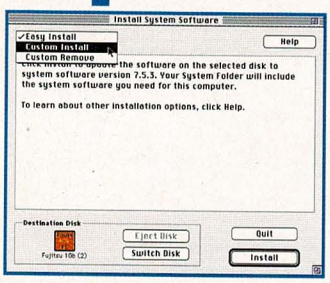
- **Open Transport networking software**
- **More PowerPC-native code**
- **Faster Virtual Memory**
- **Improved stability on PowerPC based systems**
- **Support for new Apple technologies (Game Sprockets, QuickDraw 3D, OpenDoc)**
- **Improved networking and printing**
- **Better stability on 180MHz+ machines**

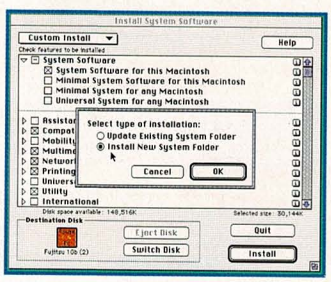
If you are running a PowerMac or PowerPC-based Performa, we strongly advise you to update to System 7.5.5. It's faster, much more stable, and offers support for loads of new technology coming out of Apple, such as Game Sprockets – already used by many games, including *Actua Soccer.*

And it's goodbye to...

System 7.5.5 is the last version of the Mac OS for the following machines: Mac Portable, Mac Plus, PowerBook 100, SE, SE/30, Mac II, IIx, IIcx, LC, and Classic. System 7.6 (due out any day now) will not run on Macs based on either a 68000 or 68020 processor – which means all those listed above. For more details on System 7.6, call Apple on 0800 127753.

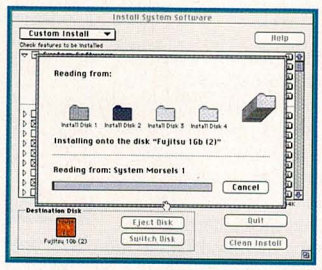
Step 1





1 **Back up your present System folder first, then start up from your original System disk, and double-click the installer icon. We recommend that you customise the install for your model of Mac – this will install software that is applicable to your Mac setup. You do this by selecting Custom Install in the pop-up menu.**

2 **Under System Software, select System for this Macintosh, plus any additional extras such as networking, printing, or multimedia software you need. A Custom Install will give you a System Folder optimised specifically for your needs. If you're not sure what software you need, go back to the Easy install option, which will make a "best guess" for your particular Mac. (If you have more than one disk with a System Folder connected to your Mac, you can select which one you want to update by clicking the Switch Disk button.) Then hold down [command] [shift] K, and select Install New System Folder.**

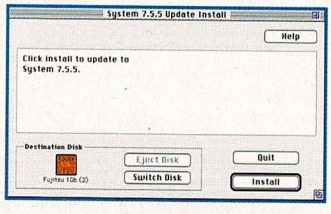


3 **The Install button will now change to Clean Install. Hit this and sit back while your Mac installs the new System Folder onto your hard disk. If you're running the installer from floppy disks, you'll need to feed the Mac floppies as it asks for them. Otherwise, now would be a good time to make a nice cup of tea!**

Step 2

Updating to System 7.5.3 Revision 2

Once you've installed a nice clean System Folder from your original System disks, you can use the first of the updaters on the Cover CD. Don't move your non-Apple Extensions over from your old System Folder yet. The first step is to run the **System 7.5.3 Revision 2** installer. This updates certain Extensions and Control Panels in your System Folder that aren't covered by the System 7.5.5 updater and also removes some Extensions that are no longer required.



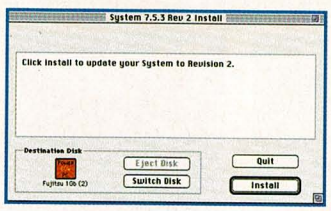
Double-click on the System 7.5.3 Revision 2 installer inside the System Updates folder on the Cover CD. This time, there is no Custom Install option, so just go ahead and click the Install button. The update doesn't take long – just a couple of minutes on most Macs.

Step 3

Updating to System 7.5.5

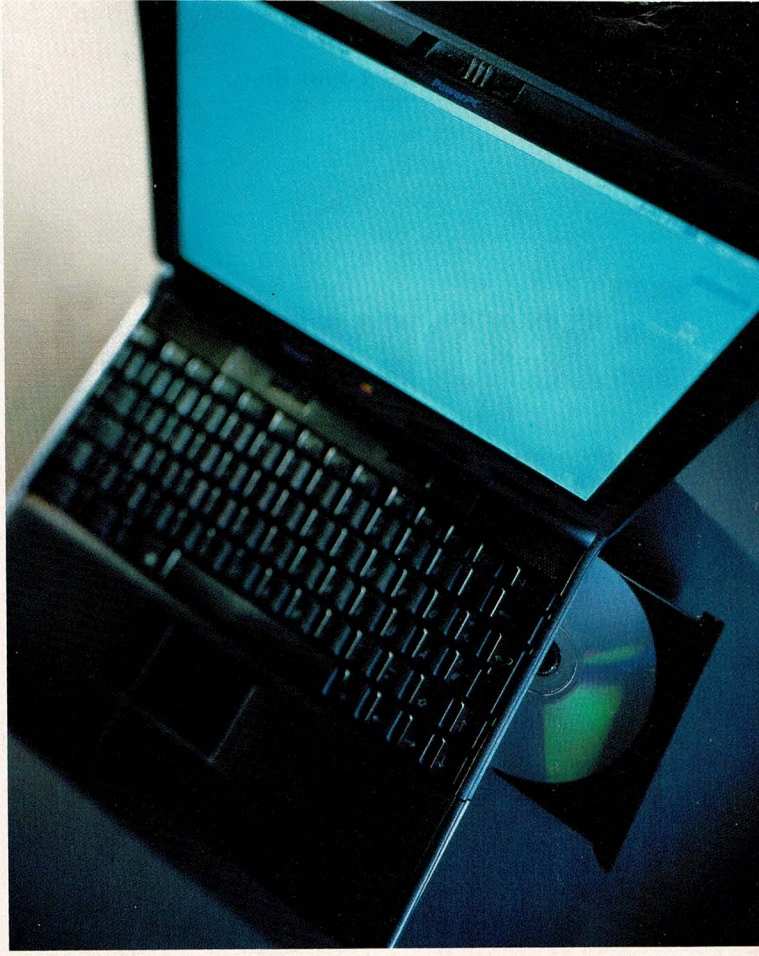
The end is in sight! This is the final update, and you will now have the most stable System possible. System 7.5.5 boasts numerous enhancements over System 7.5.3 and is the last System version to be released for some Macs (for more details of this, see the "And it's goodbye to..." box at the top of the page).

If you are updating from System 7.5.1, you will notice a lot of new features on your Mac – we strongly advise you to thoroughly read through the documentation that comes with the update.



Double-click the System 7.5.5 Update installer inside the System Updates folder on the Cover CD. Again, there is no Custom Install option – the installer will simply update the System Folder you created in Step 1. If you know your way round the System Folder, you can disable any Extensions you don't need later using the Extensions Manager.

And that's it! Now restart your Mac to use your new System software, and move all your non-Apple Extensions, Control Panels, and Preferences over from your old System Folder (use the **Get Info** command in the Finder – an Apple Extension will have an Apple Copyright message in the box). We recommend you hold on to your old System Folder for a few weeks, just in case you have any compatibility problems. ➤



Power to the people.

Just a popular notion? Not any more. Because the latest Power Macintosh™ and Macintosh™ PowerBook™ computers from Apple, offer more power than ever – at lower prices than ever.

The new Power Macintosh range redefines the limits of Macintosh™ performance. With up to 233MHz* performance delivered from the mighty PowerPC™ 604e processor and the capacity for up to 768MB of RAM, you'll be able to cut a swathe through once gruelling tasks like 3D modelling, computer simulation, graphics rendering or video processing in record time – even faster, if you opt for a multiprocessor model. And with features like a 12-speed CD-ROM drive, PCI expansion slots and internal hard disks of up to 2.4GB capacity provided as standard – storage and expansion limitations become problems of the past.

The new Macintosh PowerBook range provides the ultimate solution for the mobile professional – full desktop performance and functionality in fully portable form. In fact, the new Macintosh PowerBook 3400 series includes the most powerful notebook computer available today. With its compact PowerPC 603e processor, offering clock-speeds of up to 240MHz,† built-in 12.1 inch colour display, high-speed CD-ROM drive and four speaker sound system–the PowerBook 3400 not only has what it takes to deliver stunning multimedia presentations on the move, but all the power you need to initiate and develop the grandest plans wherever you are.

So if you're tired of waiting for your computer, why not seize power today? For more information call the Apple Information Centre free on: 0800 590 452 or visit our Web site at: http://www.euro.apple.com/uk

Give your dreams a chance.

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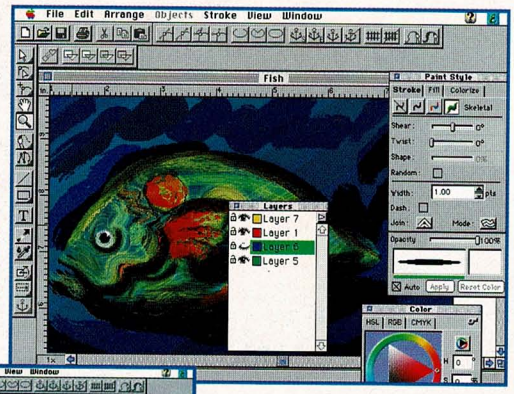
Expression



Each image is composed of elements placed in layers, which makes editing very easy.

What is it? Save-disabled demo
Where you'll find it: Demos folder
Mac: 68030 with FPU
PowerMac: any
Requires: System 7.1, 8Mb RAM (12Mb for PowerMac).

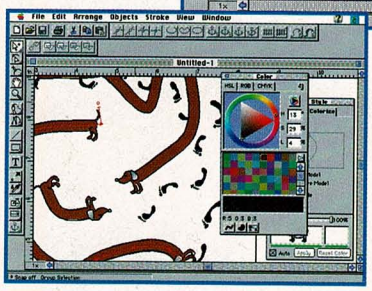
Expression is a vector drawing application which provides natural looking media, while retaining all the benefits of editable paths. What this means is that you can quickly create professional images, and then just as easily edit individual strokes' position, shape and colour, zoom in on images with no loss of detail, and alter elements using a selection of transformation effects. In fact, your image can be edited to the smallest detail.

There is a huge collection of brush patterns accessible through the **Stroke Warehouse** palette, including real media like markers and chalk, as well as a host of outlandish originals – we recommend you try the dog and human footprints strokes! You can also create your own customised brushes, so there's no limit to the effects you can achieve.

A selection of sample files are provided for you, and these demonstrate what can be created by layering strokes and using some of *Expression's* more advanced features. (See the review on page 82.)

To install

Double-click on the ***Expression* Demo** installer and follow the on-screen instructions.



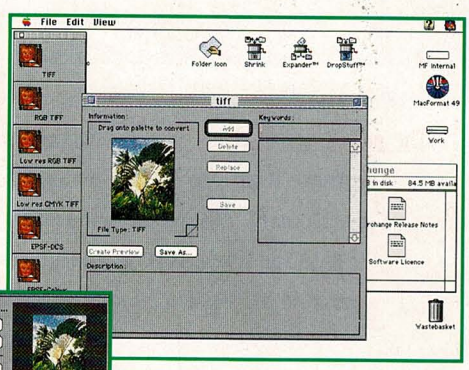
These dogs are on the trail of whoever created the odd footprint strokes.

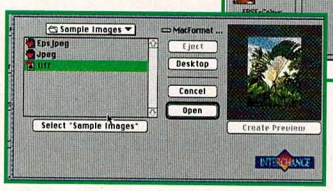
***Expression* brings fine art media to a vector drawing environment.**

Interchange

Drag an image to the **Format** palette to select a new format. You can also try ***FBI Pro*** – on the CD and reviewed on page 98.

Some sample images are provided with *Interchange* for you to experiment with.





What is it? Working demo (limited to 50 compressions/ conversions)
Where you'll find it: HighWater Demos
Mac: any
PowerMac: any
Requires: 16Mb RAM. CH-JPEG requires *Photoshop 2.5.1.*

As its name suggests, *Interchange* is a set of graphic conversion programs which supports all the major graphics file formats. While this facility is not needed by the majority of Mac users, it is perfect for multimedia authors and graphic designers, who have to get images from a variety of sources in different formats.

Interchange relieves the tedium of batch-converting large numbers of graphics files. You can set up to ten "tasks" such as converting all the files in a specified folder to a new format. These tasks can then be run in the background, while you get on with other things.

Also included is CH-JPEG, a Plug-in for *Photoshop* which provides enhanced JPEG compression – it's used to make files smaller.

Interchange Pro can automatically monitor up to ten folders, converting any graphics files placed in them to a specified format, and then will optionally move the original files to a new folder for you.

***Interchange* supports a wide variety of graphics file formats.**

Some sample images are supplied in various formats, so give them a try! This demo version is limited to a total of 50 compressions or conversions, using any of *Interchange's* varying components.

To install

Interchange and **CH-JPEG:** double-click on the file called **Double Click Me** in the **Interchange** folder and then follow the on-screen instructions.

Interchange Pro: double-click on the file **Double Click Me!** in the **Interchange Pro** folder and then simply follow the on-screen instructions. ➤

Got a problem?

Before installing software from the Cover CD or Floppy Disk, we recommend you always back up any important work on your hard disk. This precaution will avoid problems if it turns out that a program isn't compatible with your Mac set-up.

We make every effort to check our Cover Disks for compatibility and viruses, but the information here is intended as a guide only, and MACFORMAT cannot be held responsible for any damage to data, any inability to use this software or any resulting losses. So please back up first.

If your CD-ROM or disk is defective, return it to us and we will replace it. Please make sure you have followed the installation procedures described in these pages correctly, to ensure that there is a physical problem with the disk itself. Otherwise, the replacement will give you exactly the same problem!

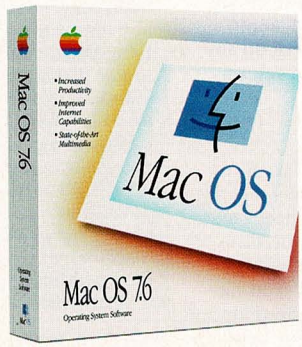
Enclose a self-addressed padded envelope (but we'll pay return postage) with the disk or CD, and a description of the fault. Please do not return disks or CDs to the editorial office; we don't hold any stocks of them and can only refer you to the appropriate address below.

Return faulty CD-ROMs to:
MACFORMAT CD returns
PC Wise Ltd, Dowlais Top Business Park,
Dowlais, Merthyr Tydfil,
Mid Glamorgan
South Wales C48 2YY

Return faulty HD disks to:
TIB plc, TIB House
11 Edward Street
Bradford BD4 7BH

Mac OS 7.6

NO LIMITS ONLY YOURS.



Mac OS 7.6 unites many of the recent technologies available in the industry today with additional features and functionality, to offer customers improved productivity, efficiency, and PC compatibility. Specifically, **Mac OS** 7.6 embodies the latest version of OpenDoc component software technologies, integrated Internet functionality and connectivity, and Apple's advanced multimedia technologies (QuickTime Media Layer), as well as offering enhanced support for Windows files and media. **Mac OS** 7.6 also improves performance in key areas such as printing and networking. Finally, **Mac OS** 7.6 installs easily, so you get all the benefits of the latest, greatest system software innovations quickly, while maintaining compatibility to existing System 7 based files and applications without modification.

** for PowerPC™ only.*

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Simply powerful software.™

Call Upgrades Unlimited on **0181 358 6655**
for more details of the Mac OS, quoting reference MFOS497.
Or visit the Claris Web Site:
http://www.claris.com/intl/uk/
Claris International, Inc., 1, Roundwood Avenue,
Stockley Park, Uxbridge, Middlesex UB11 1BG.

Mac OS

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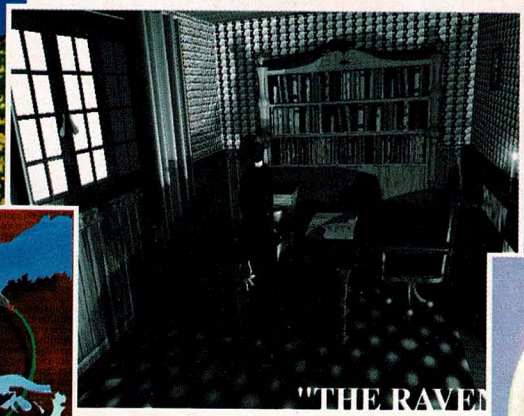
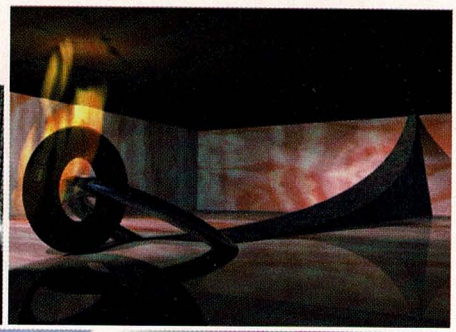
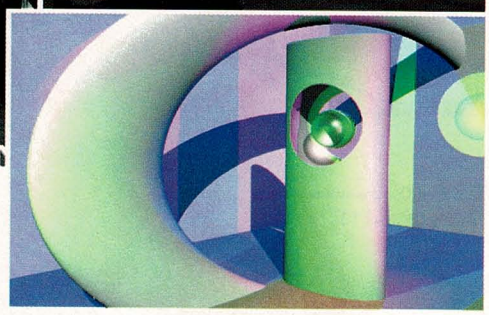
Readers' Corner

This issue Ian Collins, a degree student at Manchester University, has sent an interesting mix of abstract painted work and 3D-rendered images. Also providing some fine art work is Tim Southhall, whose series of images created in *Photoshop* have been exhibited at the Surikov Institute in Moscow.

The readers' contributions section includes a celebrity dictionary to help you remember your favourites celebs' birthdays, and some useful bits and pieces written by Matthew Dolan, including an Extension that will help keep your Mac's Desktop file up-to-date.







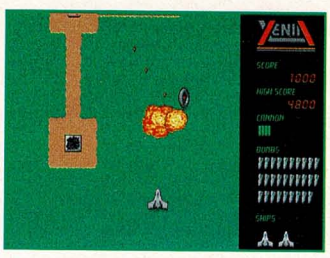
Artwork this issue is supplied by Tim Southall (top left), Richard Cooper (above) and Ian Collins.

On the Floppy

This issue's floppy disk is positively bursting with booty! Not only do we bring you a useful collection of utilities and icons, but also some fantastic games! So get ready for 3Mb of fun. These programs can also be found on the CD, in the MACFORMAT 49 Floppy folder.

Xenia

There is currently a trend for retro gaming which even the latest generation of games machines are following. But you don't need anything more than your trusty Mac to re-experience those halcyon days. *Xenia* is a remake of the classic game *Xevious*, the very first vertical scrolling shoot-'em-up. The gameplay is simple – shoot and bomb everything in sight and pick up any bonuses that are left. And yes, it's very addictive...



Any moment now the screen will be filled with vengeful aliens. In *Xenia*, the name of the game is to kill...

Insecticons Vol 1

What's happening?! My Mac is covered with bugs! Fortunately they're the benign kind – spider, beetle and cups of espresso(?) from this distinctive icon collection. There's even a "Mac-like" beetle, sporting Apple's rainbow colours. Spice up your Desktop with some of these!

Smart Scroll 2.02

The Mac OS interface is the best in the computing world – okay, perhaps I'm biased. But there is one thing that has always annoyed me – and that is the scroll bars. With the standard set-up, you have no idea how much of the document or folder is off-screen. Well, now your worries are over – *Smart Scroll* changes the size of the scroll block to represent the amount of the document shown. Trust me, it may sound confusing, but it works!

File Buddy:

Keep your files in order with this indispensable little utility. It will find the needle in the proverbial haystack that is your hard disk, and search file contents.

How to use your disk

High density floppy disks normally contain up to 1.4Mb of software, but so that we can bring you as many useful programs as possible, we use a compression utility to fit more on. This means you need to decompress the software before using our Disk; this issue you'll need 3Mb of hard disk space.

We also recommend that you always make a back-up of the MACFORMAT Cover Disk, just in case anything goes wrong.

To decompress the Cover Disk contents, open the MACFORMAT 49 folder on your hard disk and double-click on the MacFormat 49 icon. You'll see a screen telling you about the compression utility we've used. Click Continue when you're ready.

A box then asks you where you want to save the software. Choose the place on your hard disk where you want everything stored, and click Save to get hold of this issue's programs.

Enemy Bomber Balloons:

Battle against hostile bomb-dropping balloons in this action packed game.

GURU:

Find out exactly how to upgrade your Mac's memory with this definitive guide to every Mac and clone.

MultiTimer:

Use this utility to measure just how much time you spend on each project. **MF**

Upgrade to PageStream 3.3

The exclusive "Special Edition" version of *PageStream 3.2* on this issue's bonus Cover CD includes all the functions you need for everyday DTP tasks, and gives you the full flavour of the powerful features of this impressive program.

Several of *PageStream's* functions go beyond those of the industry-standard DTP giants – *PageStream* offers a configurable toolbar, zoom in up to a staggering 3,000%, multiple Undo's, text wrap on both sides of an object, superb drawing and object-creation tools, some of the most gorgeous "fill pattern" capabilities you'll ever see in a DTP program, and much more. All these are fully usable in this "SE" version.

However, some "professional-level" and specialised features have been removed – notably, AutoSave and AutoBackup, Save as Template, Document/Chapter Setup, Color Separations and Pantone Color Libraries, and certain text styling capabilities and text wrap options.

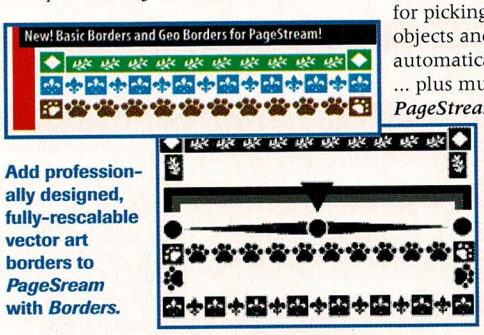
If you like *PageStream* and want all of these superb features – as well as much more – you can upgrade to to the very latest version, *PageStream 3.3*, with a full manual and all features enabled, for a very special price through MACFORMAT.

What you get

PageStream 3.3 boasts all the features of v3.2SE, *plus*

- Save as Template function
- Facing Pages option
- Revision History
- Thumbnails output
- Complete Colour Separations (both process and spot colours)
- Plate Control
- Auto Drop Caps and Bulleted Paragraphs
- Smart Quotes/Dashes/Bullets
- Leading mode adjustment
- Auto Ligatures
- Custom Type Styles (custom outline, shadow, reverse, etc)
- External Graphics
- Non-square Text Frames
- Fully configurable tool defaults
- An invaluable Eyedropper tool for picking up attributes from objects and applying them automatically to other objects

... plus much, much more. ***PageStream 3.3* is the affordable, easy-to-use, professional strength DTP package without the heavyweight price-tag. As a MACFORMAT reader, you can upgrade to *PageStream 3.3* for just £99 + VAT, *including delivery* in the UK and Europe – an amazing £116.35 inc VAT, delivered to your door!***



Add professionally designed, fully-rescalable vector art borders to *PageSream* with *Borders*.

Just some of the effects that can be achieved with *TextFX*.

Also available

To enhance *PageStream*, SoftLogik is also making available a range of exciting add-ons that will work with either 3.2SE or 3.3, which you can buy at very special prices too:

- **TextFX 2.** How often have you wished you could put text on a curve and distort it inside shapes, without having to take it out to *FreeHand?* The *TextFX 2* extension for *PageStream* gives you everything you need, with a simple interface, including over 80 ready-made shapes and 30 curves to choose from, as well as any you define! *(TextFX requires Adobe Type Manager and PostScript fonts)*

TextFX 2: £30.95 inc delivery and VAT (US$50 direct).
Order code MFPAGEFX

- **Borders.** Add a whole new tool to *PageStream* – just select it and draw a decorative border! The patterns are professionally designed vector illustrations, so they look great at any size – thickness and colour are fully adjustable. Great for posters, coupons, certificates, or just for fun on any document!

- **Borders vol 1 ("Basic Borders" – 60 borders including geometric, coupon, map & symbol designs): £25.95 inc delivery and VAT (US$40 direct).**
Order code MFPAGEBOR1

- **Borders vol 2 ("Geo Borders" – a further 60 decorative borders, including classical and music designs): £25.95 inc delivery and VAT (US$40 direct).**
Order code MFPAGEBOR2

- ***Save £16!* Both sets of Borders £35.95 inc delivery and VAT (US$60 direct).**
Order code MFPAGE02

- **Gary's Effects.** Nine effect filters are included with *PageStream;* this set adds another 12, ranging from Solarize, Blur, and Equalize to the totally configurable "Convole", which includes pre-sets for Gaussian Blur, Laplacian Edge Enhancement and many more!

Gary's Effects: just £17.95 inc delivery and VAT (US$25 direct).
Order code MFPAGE03

How to order

That's right – as a MACFORMAT reader, you can order *PageStream 3.3* for just £99 + VAT, *including delivery* in the UK and EC – an amazing £116.35 inc VAT, delivered to your door!*

- Use the order form on page 144, specifying **PageStream upgrade,** order code **MFPAGE01** (or the appropriate order code for *PageStream* add-ons listed to the right of this page).
- Alternatively, phone our order hotline, **01225 822511** (9am – 6pm).
- Readers outside the UK and EC: contact us first for details of delivery charges – phone +44 1225 822511, fax +44 1225 822523, or e-mail **subs@futurenet.co.uk**. Or if you prefer, contact SoftLogik Publishing Corporation at 315 Consort Drive, St Louis, MO 63011, USA.
Sales: 1-800-829-8608 or 314-256-9595 (from overseas, dial your international call code, then country code 1, then the number)
Fax: 314-256-7773
Web site: **www.softlogik.com**
E-mail: **sales@softlogik.com**
AOL: keyword **SoftLogik**
Mention MACFORMAT and the *PageStream 3.3* upgrade will cost you US$150 direct from SoftLogik.

- **All the offers on this page expire on 30 June 1997.**

***Delivery included to UK and EC addresses. Overseas readers, contact us for delivery charges, or call SoftLogik in the US direct. *PageStream 3.3* will be mailed to you complete with printed manual, but without bulky, wasteful packaging. Orders will be despatched as soon as we receive stocks of the manual – please allow 28 days for delivery.**

FutureNet

http://www.futurenet.co.uk/

Your Web pages

Keep up with OpenDoc and Java developments and improve your Web design with MACFORMAT's top picks.

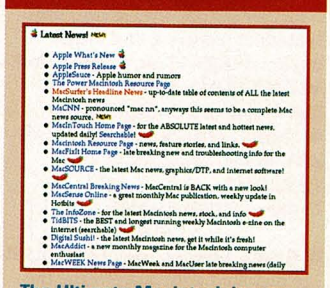
FutureNet gives you access to the very latest from Future Publishing's 50 magazines, 24 hours a day. Just connect to the home page to discover a wealth of news, features and reviews from all of Future's magazines. FutureNet also includes fresh news every weekday and interactive forums and news of the latest Future launches like *Total Film.*

Magazines you'll find on FutureNet include *Computer Arts, Future Music, .net, .net Directory, T3* and *Edge.* FutureNet is Future Publishing's official Web site and Europe's busiest commercial site, with over 500,000 registered users.

The best of Future Publishing is on FutureNet 24 hours a day.

You'll need a modem and an Internet Service Provider account, or a direct connection through work or college, to access the Internet. Next you'll need a Web browser such as *Netscape Navigator* – then you're ready! Just direct your browser to http://www.futurenet.co.uk/ to receive your welcome to FutureNet.

Ultimate Macintosh



The Ultimate Macintosh is your gateway to the Mac on the Net.

The Ultimate Macintosh is your guide to Mac resources, shareware sites and newsgroups. Just point your Web browser at http://www.futurenet.co.uk/computing/macformat.html.

Piece of the action

This issue you can find out about component software. Systems like OpenDoc and Java enable you to embed and use small programs within a single document to give you more flexibility and control over your information. See our cover feature, starting on page 32, for more details on what this can do for you.

Once you've developed the appetite for using components, though, the Net plays a vital role in helping you expand your component collection. Web sites like PartBank (**http://www.partbank.com/**) are convenient one-stop areas for buying any components you might want, while the following pages will keep you abreast of all the latest developments.

Name	Web address

OpenDoc — **http://opendoc.apple.com/**

Apple's official OpenDoc site offers the very latest OpenDoc software for you to download, plus a range of news and briefings for Open Doc users and developers alike.

Club OpenDoc — **http://www.software.ibm.com/clubopendoc/**

IBM's OpenDoc site contains excellent technical resources, aimed at professional programmers.

The OpenDoc Revolution — **http://www.cc.gatech.edu/people/home/mpinkert/opendoc/OpenDoc.html**

Mike Pinkerton's independent site is the best source for OpenDoc news and also offers a fine introduction to the system.

Cyberdog — **http://www.cyberdog.apple.com/**

Apple's OpenDoc-based Internet suite is one of OpenDoc's finest assets. There's a very early version of *Cyberdog 2.0* available free here, although you shouldn't touch it if you're wary of potentially unstable software.

The Cyberdog Pound — **http://www.microserve.net/~dhughes/**

The Cyberdog equivalent of the *OpenDoc Revolution,* the *Cyberdog Pound* is an excellent site, full of news and background information to help you get the most out of *Cyberdog.*

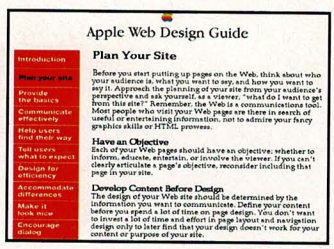
JavaSoft — **http://www.javasoft.com/**

The official Sun Microsystems site gives you the lowdown on its computer-independent component system, but you might find the information over-technical. Again, one aimed more at programmers than a general audience.

AppleJava — **http://applejava.apple.com/**

Apple's Java resource is a friendlier introduction to Java, and you can download the latest Apple Java Virtual Machine.

Web design



You've got a huge choice of software to help you write HTML pages for the Web, but that doesn't necessarily mean you're going to be able to create effective pages. Like good magazine design, though, there's a set of principles you can master to get your message across more effectively. Check these Web pages and draw on the experience of people who've already spent years trying out different techniques and Web site structures, searching for the perfect page...

Name	Web address

Apple Web Design Guide — **http://applenet.apple.com/hi/web/web.html**

Put together from Apple's extensive research into how people use computers and the Web, this collection of guidelines and tips shows you how the firm achieves its own high standard of Web page design.

Net Tips for Writers and Designers — **http://www.dsiegel.com/tips/index.html**

Opting for the purist approach to Web design, David Siegel's pages are full of opinionated comment on applying classical design and old-fashioned good writing to your pages. It's spot-on.

Web Pages That Suck — **http://www.webpagesthatsuck.com/**

Find out about other people's mistakes and learn how to avoid clichés with this uncompromising look at some of the biggest wrong decisions people have ever committed to HTML.

Yale WWW Style Manual — **http://info.med.yale.edu/caim/StyleManual_Top.HTML**

The Yale Centre for Advanced Instructional Media is a huge training and communication project. Here the centre describes how it arrived at its clearly laid-out structure. Thumbnail diagrams help you study different design approaches.

Access the Internet with Direct Connection and you'll never feel left out in the cold. Call us and you'll be greeted by a helpful team who understand your concerns.. Join us and you'll be welcomed as a fellow member – not treated like the number on an invoice. We've been connecting people since 1989, we've solved problems that most net providers have only just discovered, and we've learnt hundreds of ways to be more useful and more accommodating. So call Direct Connection today, and cross the threshold to a friendlier Internet.

Check out the details for yourself:

- ★ Free Mac Software (fully licensed)
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- ★ Joining fee of just £7.49 ex VAT, £8.80 inc VAT
- ★ Dial-up account just £11.49 ex VAT a month, £13.50 inc VAT
- ★ Mac-friendly 7 day-a-week support
- ★ Access via modem (up to 33.6Kbps) or ISDN
- ★ Free 5Mb of Web space
- ★ Corporate services available (web hosting, email gateways, etc)

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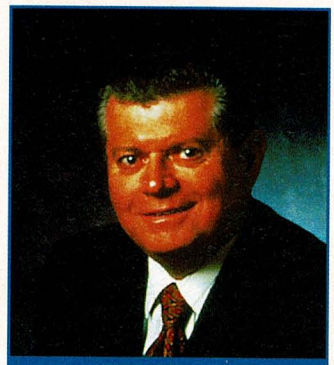
Direct Connection, Martin House, 1 Tranquil Vale, Blackheath Village, London SE3 0BU

Apple gets tough on spending and jobs ■ New Rhapsody OS update ■ Top graphics firms to merge ■ Be goes Mac-only ■ News Editor: Richard Hill

MACFORMAT NEWS

New, tougher Apple prepares for battle



Gil Amelio is laying down the law at Apple, with a reshuffle of personnel and a tough new message.

The gloves are off. Apple is to remake itself into a leaner, meaner, more obviously competitive company as it continues its epic pull-back from huge financial losses in 1995 and 1996.

Apple President and CEO Gil Amelio's new moves are designed to make the firm innovate more quickly, spend less money on day-to-day operations and assert itself once again as one of the world's foremost computing companies.

All three strategies were embodied in Apple's unveiling of its strongest new Mac line-up in years. Highlights include a completely new PowerMac range and, according to Apple, the world's fastest portable computer (see "What's New" on page 26 for full details of the new Apple line-up).

Speaking at an Apple shareholders' meeting in February, Amelio declared: "I want to recreate the Apple that can once again turn this industry on its head... an Apple that shocks, amazes and delights people with the power of high technology made easy and accessible."

"Apple was broke"

Amelio painted a dramatic but honest picture of Apple's former precarious position and of the great task ahead. "When I arrived, we were broke," he said. "We had barely enough cash to conduct day-to-day business."

Added to this, he said, was a set of problems like poor-quality products (the result of compromises made in order to get more product on the shelves and chase market share), an overdue revamp of the Mac operating system and an undisciplined company culture. "The company was simply doing too much, moving in too many direc-

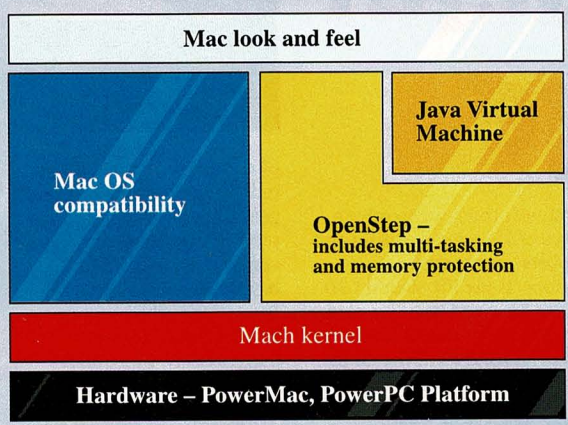
Searching for an evocative metaphor to describe its new Macs, Apple has leapt on the hit film *Independence Day's* combination of high-tech glamour and war-like imagery – it's perfect for the firm's new, more aggressive tone. This particularly direct piece of advertising is part of a new campaign from Apple. The firm hopes to see demand for the PowerBook reach the heights of last year's film tie-ins – and this time it even expects to have some PowerBooks on sale at the same time!

Rhapsody update

The groundwork for Apple's new operating system, codenamed Rhapsody, is complete, with decisions made on which pieces of software will be used as its foundation. The systems used by NeXT Software, recently bought by Apple, will provide Rhapsody's heart – the Mach kernel used by NeXT is confirmed as the core layer of Rhapsody, with the rest of the OS working on top of it.

Mach will take care of essential software management, giving Rhapsody the ability to run more than one program at once by sharing processor time between them. This will protect the rest of the system from any crashes that a single program may suffer, and offer every Rhapsody program the ability to run faster – so long as you have a Mac with more than one processor, such as the new 9600/200 MP. Other options under consideration had included Apple's own NuKernel, developed for its since-abandoned Copland OS project.

Two other parallel systems will run on top of the Mach kernel. Apple calls these "Yellow Box" and "Blue Box". Yellow Box will be based on NeXT's OpenStep software. Because of the way OpenStep was designed, the combination of OpenStep and Mach will be able to run on PC processors from Intel as well as the PowerPC chips used in Macs. Any program written to work under Yellow Box will work on either Mac or PC without any modification whatsoever.


Mac look and feel
Mac OS compatibility
Java Virtual Machine
OpenStep – includes multi-tasking and memory protection
Mach kernel
Hardware – PowerMac, PowerPC Platform

The Mach kernel is now established as the foundation for Apple to revamp both System 7 and NeXT Software's OpenStep. The latter already includes the 3D system used to create *Toy Story*.

OpenStep also includes *RenderMan*, a powerful 3D graphics system created by Steve Jobs's other pioneering firm Pixar, maker of the hit film *Toy Story*. Apple now has to decide whether to license the system, which would give every Mac with Rhapsody a pro-level 3D system.

Blue Box will remain unique to Macs running the PowerPC processor – it's the present System 7 converted to work with the Mach kernel.

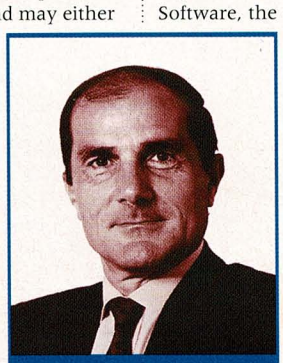
Apple has also confirmed that it will use Adobe's Display PostScript for both screen display and printing in Rhapsody. It should mean you'll get a screen image that reflects exactly what you can expect to see in print. Apple hopes to persuade Adobe to incorporate features from its own QuickDraw GX system into PostScript. GX offers excellent control over typographical features, but few programs take advantage of it.

tions – and not enough of it was profitable. When it came to cool new projects, Apple's eyes were bigger than its stomach."

Despite unexpected losses over the Christmas period, Amelio says Apple's underlying financial situation is much stronger; and the firm now has clear plans for updating and revamping its system software (see the "Rhapsody update" box).

Now, though, Amelio wants further trimming of Apple's costs, along with new approaches to planning and marketing. He announced a fundamental reappraisal of which projects Apple will take on, and the resources it needs to do them. "It's time for Apple to face up to the fact that we cannot do everything. We can't be in every market. We can't support every technology."

Apple is now looking at whether there are any parts of its operations it can live without, and may either discontinue or sell off parts of the company. This will also lead to more redundancies on top of those made last year.



Marco Landi was demoted to sales and support, and resigned within days.

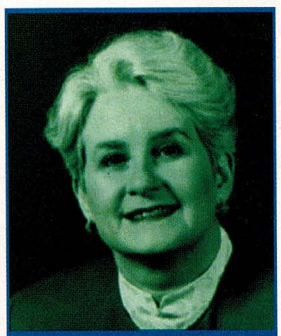
Some parts of Apple may either be sold entirely, or divested into a separate firm (Claris is the best example of this approach within Apple). The hottest speculation within the industry has surrounded Apple's Newton and Pippin projects, but Amelio later commented that a sell-off of the Newton hand-held device was unlikely, and Apple already has little involvement in the Pippin Internet and multimedia console.

In and out

Apple's latest transformation has begun with a restructuring of the firm. Tasks like research, sales and, in particular, marketing and advertising will each be handled by one main department.

The key new faces are Jon Rubenstein and Avadis Tevanian, respectively in charge of hardware and software research. Both recently joined Apple as part of its takeover of NeXT Software, the creator of the software at the heart of Apple's forthcoming Rhapsody operating system. The move means there's a distinct core of former NeXT staff at a location crucial to Apple's future.

Guerrino de Luca, previously the head of Apple's successful Claris subsidiary, will oversee a more direct approach to marketing and advertising; and, in a surprise move, Apple co-founder Steve Wozniak joins his former partner Steve Jobs in an advisory role.



Formerly Apple's research head, Ellen Hancock has now taken on a new role.

Several high-up figures within Apple have resigned in the wake of Amelio's reshuffle – marketing head Satjiv Chahil, product manager Frederick Forsyth and sales manager John Floisand all lost these positions and are moving on.

The biggest departure, though, is Marco Landi, who scorched up the Apple ranks to become Chief Operating Officer (effectively second-in-command after Amelio) within months of joining to head Apple Europe. Typically, his departure came in dramatic fashion, only a few days after he enthusiastically led the launch of Apple's new range. His move to worldwide sales and support had represented a demotion.

Also given less responsibility in the reshuffle is Ellen Hancock. Previously the head of the entire research team, she's now taking care of advanced research and quality control. Hancock was quick to quash heated rumours of her own resignation intentions.

Developer relations head Heidi Roizen is also leaving, but her departure is a consequence of overcommitment between work and family rather than politics.

Apple Europe continues to oversee the UK operation – both have been so successful that little there has changed as a result of Amelio's latest moves.

Newcomers forge Mac plans

Just days after Apple announced the PowerBook it said was the world's fastest portable computer, the 3400, a firm new to making Mac-compatibles is claiming the accolade instead.

The ImediaEngine is a luxury Mac from Canada's Vertegri Research, one of the new breed of Mac dealers biting the bullet and creating their own machines. Weighing in at over ten pounds, the ImediaEngine may not be your idea of portable, but it does offer a PowerPC 604e processor running at 200MHz, the fastest widely-available speed.

The ImediaEngine is designed to be moved from office to office, plugging it in at each location – it lacks the batteries you need to use it on the road. It features a high-quality finish with a leather wrist-rest. Due in April, the ImediaEngine will cost US$4,900 (around £3,000). Contact Vertegri in Canada on 00 1 604 688 6782 for more details.

First UK Mac firm

The Cambridge-based graphics specialist firm RedBox has also announced plans to create a Mac range. It currently offers high-power computers aimed at designers, especially those working in 3D. ➤

MetaTools and Fractal to merge

Two of the computing industry's foremost graphics software firms plan to join forces as a single company. MetaTools and Fractal Design are to merge, subject to shareholder approval at a meeting in June, creating a new graphics giant. The new firm will continue to offer a full range of 2D image-editing and 3D graphics programs.

MetaTools is the firm behind 3D landscaper *Bryce* and pro *Photoshop* Plug-ins like *Kai's Power Tools* and *KPT Vector Effects*. It's known for its unconventional interfaces, which often turn out to make you more productive than more generic approaches. It recently scored a huge success with its first "home-based" program – *Kai's Power Goo* enables you to manipulate and distort images easily. More low-cost programs are planned, starting with *Soap*, an easy-to-use program for cleaning up scanned images.

***Soap* is the second of a new line of lost-cost packages from MetaTools, taking its professional-level technology into the home.**

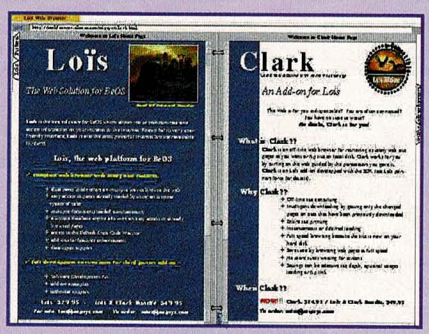
3D is set to play a huge part in MetaTools and Fractal Design's future as a single company.

Fractal Design is responsible for a range of "natural media" software including *Painter* and *Expression* (reviewed page 82), which enable you to create images with the look of crayon or pencil, for example. It's expanded the technique into 3D with *Detailer*, a model painting program.

The new firm is likely to retain both company names to use as brands, but separate 3D deals in the past year open up exciting possibilities for new software. Fractal now owns *Ray Dream Studio*, a complete 3D graphics suite, while MetaTools recently bought Real Time Geometry, which had been working on innovative high-speed 3D displays, capable of much more detail than existing technologies.

Will Fractal's natural media tools (like *Detailer*, above, reviewed in MF46) gain quirky MetaTools-like interfaces?

News in brief



The source of some exciting new software, the BeOS is now exclusively on the Mac.

Be goes Mac-only

Be Inc, the creator of the Be operating system, has abandoned its BeBox computer, meaning the BeOS will now be available exclusively on PowerPC-based Macs. The BeOS will offer an alternative to both of Apple's Mac operating systems, with the ability to run its own programs at high speed and on multiple-processor Macs. Forthcoming software includes word processors, Web browsers and graphics and video programs.

Motorola and Umax have joined Power Computing in a commitment to offer the BeOS alongside the Mac OS in their Mac-compatible computers, and multiple-processor specialist DayStar expects to sign an agreement with Be soon.

Apple prepares for video revolution

Apple has shown a PowerMac running the new Digital Versatile Disc format, the successor to CD-ROM and audio CDs, for the first time. A DVD looks like a CD but can store over 20 times as much information, including video, computer software and audio – all on a single disc. Apple's plans call for DVD-equipped Macs and portable PowerBooks to appear around the turn of the year.

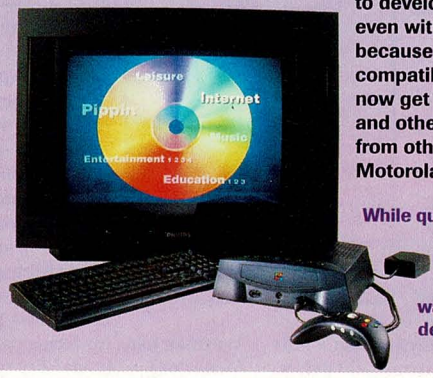
The firm is also working on a new version of QuickTime, its video display system. Version 3.0 will bring together more types of graphics information – including video, animation, virtual reality, 3D and vector images – enabling you to use these seamlessly with a single video sequence.

Bandai stands by Pippin

Bandai, the larger of the two firms to offer the Pippin multimedia console developed by Apple, says it intends to develop the system, regardless of its forthcoming merger with games giant Sega. The firm showed off two enhanced models of Pippin that it plans to launch in Japan.

One uses a drive capable of reading both rewritable discs and conventional CD-ROMs, while the other offers a redesigned case, an eight-speed CD drive and the ability to recognise voice commands.

Pippin is a console design based on the Mac OS and the PowerPC chip used in PowerMacs. You can plug it into your TV to browse the Internet or use software ranging from word processors and e-mail to games and multimedia. Apple is expected to lessen its involvement with Pippin as part of its present restructuring, but Bandai's Steven McAllister said: "We envisioned a day when Apple would concentrate its resources on other platforms." Bandai and Katz Media, the other Pippin licensee, will be able to continue to develop the Pippin even without Apple, because all Mac-compatible makers can now get motherboards and other components from other sources, like Motorola and Acer.



While questions remain over Pippin's exact future, Bandai says it wants to continue developing it.

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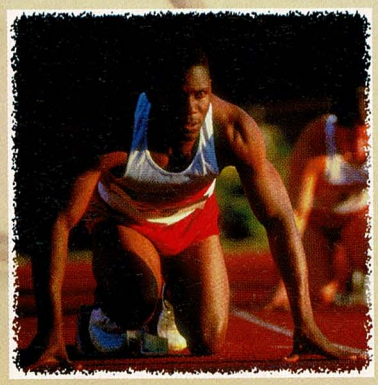
Not all Processor Boards are Created Equal...

The MACcelerate™ range has two important features, not found on similar products, which are essential to maintain the highest standards of system reliability.

• PROCESSOR DECOUPLING CIRCUITRY (PDC)
Whilst the PowerPC 604e was designed to operate at 3.3 volts, Power Macintosh main circuit boards operate at 5 volts. Although the processor's I/O buffers can be run at 5 volts, this may decrease the processor's lifespan. Perhaps not such a serious problem for infrequent users, but crucial if the system is to be used regularly or even constantly (eg. servers etc.). MACcelerate™ guarantees the operation of processors at the correct voltage - as specified by Motorola.

• PHASE LOCKED LOOP CLOCK SYNTHESISER (PLLCS)
We all know how a Macintosh may occasionally freeze for no apparent reason. Well, that's why MACcelerate™ incorporates a Phase Locked Loop Clock Synthesiser which ensures that system synchronisation on start-up is set to a more reliable fixed frequency between the main circuit board's upper and lower tolerances.

The result... a far higher standard of operational reliability than found when using boards that don't incorporate PLLCS circuitry.



The current Olympic Record is held by Donovan Bailey who was timed at 9.84 seconds during the 1996 Olympic Games in Atlanta

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Maccelerate does not invalidate your Mac's warranty and full product support is included.
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When you're starting your Mac, loading a program or file, waiting for that Photoshop™ effect, or in fact doing pretty much anything... your computer doesn't feel as fast as it used to, does it? Its not become tired itself, but the demands of the latest OS versions and the newest applications keep getting higher and higher and slow your system down. And, if you've tried one, you'll know that today's Macs are a lot faster.

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What is MACcelerate™?

Unlike many 'go-faster' upgrades which overspeed the standard processor, Maccelerate™ is a complete replacement for your Mac's original processor and daughterboard - it uses the new fast 604e CPU with 2 integral 32k caches. So, because the 604e is much more powerful than a 601 or 603, and by combining the extra horsepower it offers with the higher clock speeds of 150, 180 or 200MHz, you can see from the charts that...

The performance gains are massive!

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Your Mac was designed by Apple to be processor upgradeable and Maccelerate™ couldn't be simpler to fit. No soldering, no cables, no software to load (it simply requires System 7.5.3 or later), just plug Maccelerate™ in and reboot!

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Or, if you prefer, Harwoods can fit yours for you.

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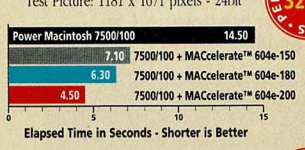
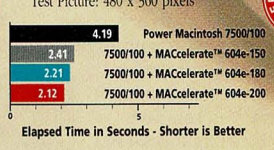
MACcelerate™ Specification, Performance and Prices

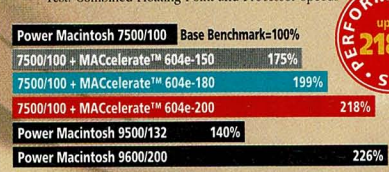
Photoshop 3.05 Gaussian Blur
Test Picture: 1181 x 1671 pixels - 24bit
PERFORMANCE GAINS 204% to 322%


Power Macintosh 7500/100 14.50
7500/100 + MACcelerate™ 604e-150 7.10
7500/100 + MACcelerate™ 604e-180 6.30
7500/100 + MACcelerate™ 604e-200 4.50
0 5 10 15
Elapsed Time in Seconds - Shorter is Better

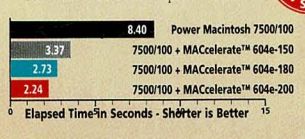
KPT Bryce 2.0 Rendering
Test Picture: 480 x 360 pixels
PERFORMANCE GAINS 174% to 198%


Power Macintosh 7500/100 4.19
7500/100 + MACcelerate™ 604e-150 2.41
7500/100 + MACcelerate™ 604e-180 2.21
7500/100 + MACcelerate™ 604e-200 2.12
0 5
Elapsed Time in Seconds - Shorter is Better

MacBench 3.0 Processor Performance Test
Test: Combined Floating Point and Processor Speeds
PERFORMANCE GAINS up to 218%


Power Macintosh 7500/100 Base Benchmark=100%
7500/100 + MACcelerate™ 604e-150 175%
7500/100 + MACcelerate™ 604e-180 199%
7500/100 + MACcelerate™ 604e-200 218%
Power Macintosh 9500/132 140%
Power Macintosh 9600/200 226%

Photoshop 3.05 RGB to CMYK
Test Picture: 1181 x 1671 pixels - 24bit
PERFORMANCE GAINS 249% to 375%


Power Macintosh 7500/100 8.40
7500/100 + MACcelerate™ 604e-150 3.37
7500/100 + MACcelerate™ 604e-180 2.73
7500/100 + MACcelerate™ 604e-200 2.24
0 15
Elapsed Time in Seconds - Shorter is Better

MACFORMAT Classic

Earning a MacFormat Magazine Classic Award, MACcelerate recently scored a staggering 91% in their review article! MacFormat said "...the MACcelerate is your ticket to first-class performance. Excellent"!

Why consider replacing your 7500? Add MACcelerate for a moderate cost and almost equal the performance of the latest 9600/200!
Overall performance increases measured using the industry standard MacBench 3.0 application. Results are combined for the integral floating point maths co-processor and main processor. Longer is Better.

Point your web browser at Motorola's own web site - http://www.mot.com/SPS/PowerPC/products/semiconductor/chips.html to see why the 604e is the most powerful processor available for your Macintosh desktop system.

150MHz MACcelerate™ £249 + VAT	180MHz MACcelerate™ £349 + VAT	200MHz MACcelerate™ £499 + VAT
New 604e with 2 x 32K Internal Cache	New 604e with 2 x 32K Internal Cache	New 604e with 2 x 32K Internal Cache

All prices exclude VAT and are shown for business purchasers only. Consumers, please ask for VAT inclusive prices. All Trademarks are acknowledged. Prices correct at time of going to press, E&OE.
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Apple reveals a dozen new Macs ■ Macromedia flagship update ■ Live Picture moves closer to home ■ Compiled by Richard Hill and Jane Bentley.

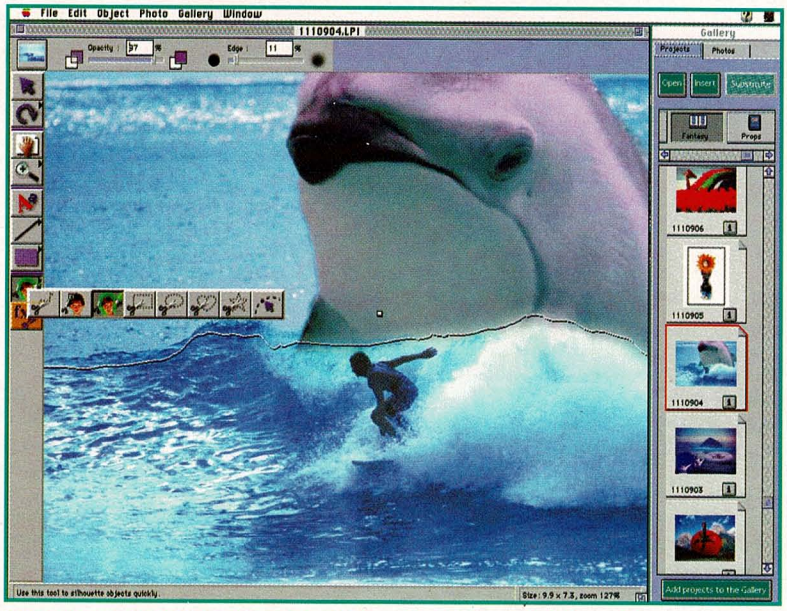
LivePix

Digital image editing is powering towards more creative horizons with the launch of *LivePix*, a magical new product from Live Picture. You'll probably know the company for its professional high-resolution editing programs *Live Picture* and *Overdrive*. *LivePix* is the first product designed for anyone who wants the power of professional image editing without having to learn a complex set of tools.

For £50, *LivePix* gives you the freedom to customise your photographs with an enviable array of tools. These include text insertion, shape cut-out and fills, object silhouetting and red-eye removal, as well as a shadow tool and the ability to pan and zoom. The program further includes tools for opacity and edge compositing, adjustable distortion, image rotating, skewing and perspective.

Live Picture is widely recognised throughout the industry for its innovative new technologies. Its IVUE image format uses some clever processing tricks to enable you to manipulate hugely detailed images in seconds. IVUE has now formed the basis of FlashPix, a new image format that Live Picture and its partners (including Kodak) intend to establish as a ubiquitous standard for images.

The advantages of FlashPix include the ability to tailor the level of detail for each device in your Mac set-up. Your Mac's screen requires an image of only 72 dots-per-inch, for example – while a printer needs upwards of 300. Normally, you would be forced either to use huge image files to achieve good print-outs, or keep images down to 72dpi but accept poor printing. A FlashPix image will appear at whatever resolution is appropriate for the device, maintaining images at top quality the entire time but still keeping image sizes to a minimum.

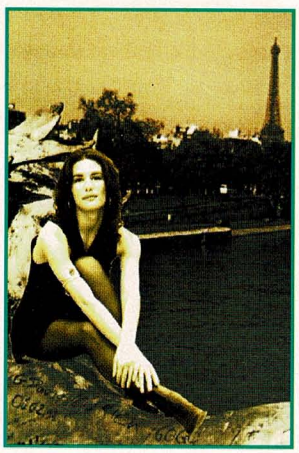


Using the powerful technology of *Live Picture*, *LivePix* is a sub-£50 graphics program with simple tools for tidying and manipulating images, ready to use in exciting new ways.

The program also comes with over 100 templates and a library of 200 photographs, so that you can combine images with your own photos to make personalised pictures, or even stationery and T-shirts. You can save images in FlashPix format or as JPEG, TIFF, BMP or GIF, enabling you to decorate your own Web pages with a gallery of images.

Live Picture is teaming up with Brøderbund, the well-known publisher of games (including *Myst*) and children's multimedia, to make sure *LivePix* reaches a wide audience. Unleashing your Mac, scanner and printer to produce photo-quality print-outs, *LivePix* should be one to watch.

■ **Price: £50.** ■ **Out: April.**
■ **Requires: PowerMac only, 8Mb of RAM (16Mb recommended), System version TBA, CD-ROM, 40Mb HD space.**
■ **Contact: Brøderbund on 01429 890873.**

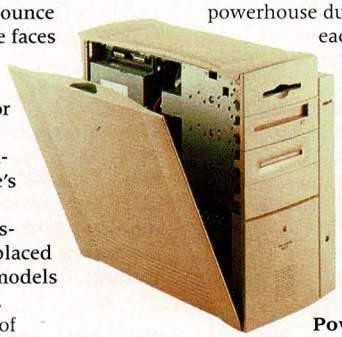


With *LivePix*, you can cut out a figure from one picture and place it in an entirely new setting, then adjust the image to make sure it blends in.

***LivePix's* great talent lies in compositing – enabling you to mix together images from many different sources.**

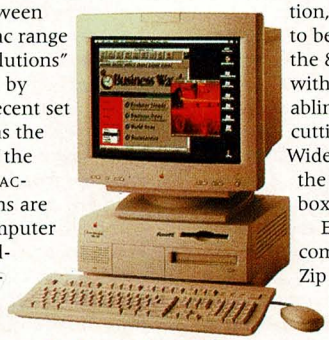
New Power-Mac range

With the choice of Mac-compatible computers widening all the time (see page 23 for details of the latest firms to announce Mac plans), Apple faces serious competition to attract anyone looking for a new Mac. It's responding in dramatic style: Apple's entire PowerMac range has been discontinued and replaced with new, faster models full of fresh ideas.



The PowerMacs' new tower case is now easier to open for fitting add-ons.

Although most of the new range uses exactly the same processor – the PowerPC 604e running at 200MHz, which is the fastest widely available – it still feels that there's a lot of difference between them. The PowerMac range now follows the "solutions" approach developed by Apple for its most recent set of Performas, such as the Creative Studio and the Home Office (see MACFORMAT 42). Solutions are combinations of computer and supporting hardware and software – one box tailored to help you perform a certain set of tasks. You just buy the solution that suits the work you want to do.



The PowerMac 7300 is aimed squarely at home offices and businesses.

■ The **PowerMac 9600** is aimed at the professional design and publishing markets, as well as more specialist demands like architecture and engineering. There are three options – dual- and single-processor 200MHz models, plus a 233MHz powerhouse due in May – and each includes an IMS Twin Turbo 128 graphic accelerator, enabling the 9600 to display millions of colours at high resolutions while drawing graphics faster than ever.

■ Also with a 200MHz 604e, the **PowerMac 8600** should appeal to creative studios producing video, animation and high-quality images. In Apple's strongest statement of its new solution-led direction, there's also going to be a variation on the 8600 crammed with software, enabling you to create cutting-edge World Wide Web sites (see the "Apple's Web kit" box above).

Each 8600 now comes with a built-in Zip drive from Iomega. The potential successor to the venerable floppy disk, a Zip disk can hold up to 100Mb but costs only £15 or so. The 8600 continues to offer built-in video capabilities, ready for connecting into a video editing suite – and you don't even need any extra hardware.

■ The **PowerMac 7300** is made for business, but keeps a similar basic specification to its more expensive stablemates. Each 7300 comes with a copy of the popular – some would argue essential – *Microsoft Office*, enabling you to produce word processing, spreadsheet and presentation documents that you can readily exchange with PC-owning colleagues or clients.

■ Finally, with no extra treats and no frills but at a cost of under £1,200, the **PowerMac 4400/200** is the most traditional of Apple's new offerings. An all-rounder for anyone on a budget who's looking for value, the 4400 alone offers a 200MHz 603e chip, similar to Apple's costlier Performas.

All PowerMacs from the 7300 to the 9600 MP now include security features to combat the rising tide of memory chip thefts – set up the security bar, and thieves will find it far more difficult to pinch your precious RAM. It's a fortunate addition, because, ironically enough, the new case designs mean the 8600 and 9600 are far easier to open than their predecessors. These tower models now use a variation of the easy-access hinged component design that Apple pioneered with the 7600. ➤

The PowerMac 9600 is Apple's fastest yet and adds a graphics card.

Apple's Web kit

One of the most clearly-defined of Apple's new PowerMac bundles tailored for specific needs, the Web Authoring Solution will offer a PowerMac 8600 stuffed with software, all aimed at helping you produce state-of-the-art Web sites. Apple hasn't yet fixed the price of the machine, which is due to appear in March. The Web Authoring Solution offers software for creating HTML or Java-based Web pages, creating and processing graphics, video and sound and creating interactive *Shockwave* productions.

Software included with the Web Authoring Solution:

- ***BBEdit 4.0*** **(Bare Bones) – the pros' favourite HTML editor.**
- ***Home Page 2.0*** **(Claris) – powerful, easy-to-use HTML editor.**
- ***HexWeb XT*** **(HexMac) – converts *QuarkXPress* documents to HTML.**
- ***Discovering Java*** **(Metrowerks) – Java programming tools with tutorial material.**
- ***WebBurst*** **(PowerProduction) – creates interactive Java applets (see the feature on page 32 for more details about Java).**
- ***Painter 4.0*** **(Fractal Design) – natural media painting program.**
- ***3D Web Workshop*** **(Specular) – creates animated 3D logos.**
- ***Debabelizer Toolbox*** **(Equilibrium) – graphics processor.**
- ***ColorWeb*** **(Pantone) – Ensures accurate colour across Web browsers on different computers.**
- ***VideoShop 3.0*** **(Strata) – easy-to-use video editor.**
- ***SoundEdit Pro 16*** **(Macromedia) – audio editor.**
- ***Director 5.0*** **(Macromedia) – multimedia authoring flagship which also creates interactive *Shockwave* material.**
- ***Navigator 3.0*** **(Netscape) – the premiere Web browser.**

Apple's full PowerMac range

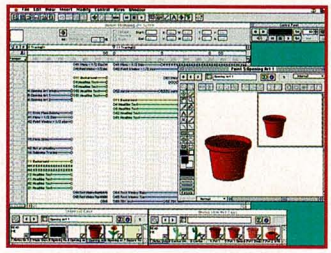
This is Apple's complete PowerMac range – all other models are officially discontinued. All prices are estimated street prices and *include* VAT. For the first time, the PowerMacs include a keyboard and mouse as part of the cost (but still *not* a monitor), bringing Apple into line with makers of Mac-compatibles. All models come with System 7.5.5, a coupon for upgrading to System 7.6, and the *Apple Internet Connection Kit*.

Model	Processor	Speed	RAM	HD	CD-ROM	PCI	L2 RAM cache	Extras	Price	Out
9600/200MP	2 x 604e	200MHz	32Mb	4Gb	12x	6	512K	IMS video card	£3,759	March
9600/233	604e	233MHz	32Mb	4Gb	12x	6	512K	IMS video card	£3,356	May
9600/200	604e	200MHz	32Mb	4Gb	12x	6	512K	IMS video card	£2,967	March
Web Solution	604e	200MHz	32Mb	2Gb	12x	3	256K	Web software, Zip Drive	TBA	March/April
8600/200	604e	200MHz	32Mb	2Gb	12x	3	256K	Zip Drive	£2,567	March
7300/200	604e	200MHz	32Mb	2Gb	12x	3	256K	*MS Office*	£2,379	March
7300/166	604e	166MHz	16Mb	2Gb	12x	3	256K	*MS Office*	£1,968	Now
4400/200	603e	200MHz	16Mb	1.2Gb	8x	2	–	–	£1,174	March

Director 6

Macromedia's *Director* has a formidable reputation. It's by far the most-used program for creating interactive productions of the type you see every time you use a multimedia CD-ROM. More and more programs, though, are starting to snap at the industry leader's heels, so the forthcoming *Director 6* will have to deliver a lot if it's to maintain its lead over the like of *mTropolis* and *SuperCard*.

The new *Director's* second vital task will be to boost the program's Internet credentials, as the Net has the potential to equal CD-ROM as a method of viewing multimedia. Macromedia is combining the needs for Net-friendliness and for innovation by offering facilities to create hybrid productions – presentations that incorporate up-to-date material from the Web with core information delivered on CD-ROM. You can now integrate the two into a single presentation, so that your audience can't tell which is which.

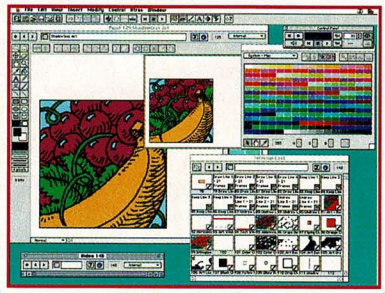


***Director* is becoming increasingly appropriate for creating Internet material as well as CD-ROM.**

Director uses Macromedia's *Shockwave* format to produce Web material. The firm has updated *Shockwave* to stream its information – this means the production will start playing as soon as possible, while downloading the rest of the data in the background. Before this, you had to download the whole thing before it was possible for it to play. Also, Java and *Shockwave* are now able to work together – so you can embed a Java applet within a *Shockwave* production, for example (see our component software feature, page 32).

Taking Java's object-based lead, *Director's* sprites – small animations that float above the main production screen – are now truly independent objects, enabling you to drag-and-drop behaviour commands straight on to a sprite. You can now use up to 120 sprites at once (the previous maximum was 48).

Macromedia has also added a host of features to simplify the development process. The **Button Editor** removes the need to script simple buttons, while the **Behaviour Inspector** offers over 30 preset behaviour patterns (changing a palette or opening a Web page, for example) that you would have had to write previously from scratch in Lingo, *Director's* programming language.



New from Macromedia, *Director 6* revamps the leading media creation package.

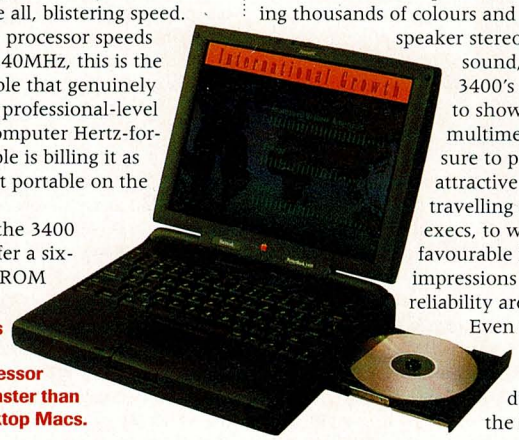
- **Price: TBA.**
- **Out: TBA.**
- **Requires: 68040 processor or PowerMac, System 7.1 or later, 8Mb of RAM (16Mb recommended), 640 x 480 256-colour monitor, 40Mb hard disk space.**
- **Contact: Computers Unlimited on 0181 357 5758.**

Apple PowerBook 3400

Apple's portable PowerBook range used to be the pride of the company, its advanced features and downright cool design making it the envy of rivals. Somewhere in 1995, though, the firm lost the plot. The PowerBook 5300 first gathered a reputation for catching fire because of faulty batteries, and then become scarce at just the point its demand hit a peak, following high-profile appearances in the films *Mission:Impossible* and *Independence Day*.

Last year's PowerBook 1400, a well-produced low-cost machine, corrected the first perception – but it's been left to the brand-new 3400s to restore the sparkle to Apple's portable line. With a choice of four options, the 3400 combines multimedia capabilities with decent battery life, new design features and, above all, blistering speed. With 603e processor speeds reaching 240MHz, this is the first portable that genuinely matches a professional-level desktop computer Hertz-for-Hertz. Apple is billing it as "the fastest portable on the planet".

Two of the 3400 options offer a six-speed CD-ROM drive, while a third offers a 12-speed version. Combined with a 12.1-inch screen capable of displaying thousands of colours and four-speaker stereo-sound, the 3400's ability to show rich multimedia is sure to prove attractive to travelling sales execs, to whom favourable first impressions and reliability are vital. Even when it's producing the full light show from a CD-ROM, the 3400 can achieve an average of three hours usage from one rechargeable battery pack.



The 3400's 240MHz 603e processor makes it faster than many desktop Macs.

You can pull the CD-ROM drive out of its expansion slot and plug in other devices, such as the floppy drive or forthcoming options like a Zip drive, any time you like – without having to switch off the PowerBook first. And like its new desktop equivalents, the 3400 includes security systems to frustrate thieves – although you'll need to buy an extra cable to make use of this feature.

Apple has also added a new PowerBook 1400 to offer a full range of eight different options, with prices starting at less than £2,000. Full details below. **MF**

Apple's full PowerBook range

This is Apple's complete PowerBook range, including the new models announced recently. The PowerBook 5300 is now discontinued, as is the Duo 2300, the last of the Duo range. All prices are estimated street prices and *include* VAT. All models come with System 7.6, *Apple Internet Connection Kit, Apple Remote Access* and PC file translation software. The 1400 series all come with *ClarisWorks* and *Claris Organizer*.

Model	Processor	Speed	RAM	HD	CD-ROM	Level 2 cache	Extras	Price	Out
3400c/240	603e	240MHz	16Mb	3Gb	12x	256K	–	£4,816	April
3400c/200	603e	200MHz	32Mb	2Gb	6x	256K	*SoftWindows*	£4,111	March
3400c/180	603e	180MHz	16Mb	1.3Gb	6x	256K	–	£3,641	March
3400c/180	603e	180MHz	16Mb	1.3Gb	*none*	256K	–	£3,348	March
1400c/133	603e	133MHz	16Mb	1Gb	6x	128K	Claris suite	£2,995	Now
1400cs/117	603e	117MHz	16Mb	750Mb	6x	–	StyleWriter, Claris suite	£2,466	Now
1400cs/117	603e	117MHz	16Mb	750Mb	6x	–	Claris suite	£2,231	Now
1400cs/117	603e	117MHz	12Mb	750Mb	*none*	–	Claris suite	£1,938	Now

Capture and Create with Casio's QV-10A Digital Camera for only £349.99* (ex.VAT)

Shoot ▶ **Review** ▶ **Edit** ▶ **View**

Open up your computer's imaging potential with the brilliant Casio QV-10A Digital Camera. Probably the most exciting development in computers since the floppy disk, the digital camera allows you to input any image you want directly into your computer for inclusion in unlimited types of applications.

With it's built-in LCD screen the Casio QV-10A is easily the most versatile and easy-to-use digital camera on the market. You can see the image on screen before shooting, review any of the 96 images instantly and even delete those you don't need to free up memory. It's just one reason why the QV-10A has already proven to be so popular amongst computer users and why The Mac magazine awarded it 'Editors Choice' and Computer Life a 5 star 'BUY IT'.

QG-100 prints direct from the QV-10A

At work or at home the QV-10A makes producing more impactful presentations so easy. Include images in your letters, reports, leaflets and club newsletters. Build your own photo album or visual database, even add images to faxes and e-mail or illustrate your internet pages. Images can be saved as Bitmap, PICT's, TIFF's or in Casio's own CAM format and imported into virtually any graphics, word processing or presentation package and even into an Excel spreadsheet. You can also plug the QV-10A into a TV to display images making it the perfect presentation tool.

Link the QV-10A directly to the new QG-100 Printer and you can produce quality, adhesive mini colour prints without the need for a computer. The QG-100 costs just £199.99** (ex.VAT)

With a stunning array of features including multiple 1, 4 or 9 image display, Macro lens, Self timer and 270° rotatable lens the QV-10A at just £349.99* is quite simply the best value Digital Camera available.

The QV-10A package includes either PC or Mac connection kit, video lead, batteries, case, cleaning cloth and instructions. The Casio QV-10A is a truly exceptional addition to your personal and business communications.

For details of your nearest stockist telephone the Casio QV-10A dealer hotline... 0181 893 2592

CASIO®

http: // www. casio. co. uk

*Retail Price Guide £349.99 ex.VAT (£411.24).**Retail Price Guide £199.99 ex.VAT (£234.99).

All screen and print images shown are simulated. The quality of the actual images produced will be of a lower resolution.

Casio Electronics Co.Ltd., Unit 6, 1000 North Circular Rd., London NW2 7JD. Tel: 0181 450 9131. Fax: 0181 452 6323

Available from Action, Argos, Great Universal, Harrods, HCS Global, Inmac, Innovations, Jessops, Misco, Novatech, Powermark, RS Components, Selfridges, Silica, Software Warehouse, Tecno, Technomatic, Viking, Watford Electronics, Branches of The John Lewis Partnership, PC World and selected branches of Dixons and Boots plus all good photographic and computer stores.

OpenDoc, QuickTime, AppleScript – what's *your* view on the burning issue of the day: should Apple make the space bar bigger on its keyboards? Write and let us know your feelings on Apple's technologies, MACFORMAT or anything Mac-related, and if your letter is published here you'll win your very own MACFORMAT binder. (If you can't wait to get your hands on a binder, you can of course turn to page 144 and order one using the OrderForm...)

Share your views and win a MACFORMAT binder. Write to: Alex Summersby, AppleTalk, MACFORMAT, 30 Monmouth Street, Bath BA1 2BW, e-mail macformat@futurenet.co.uk

¡Vinceremos!

I am writing to complain about the review of *A-10 Cuba: Missions at Guantanamo Bay* in MACFORMAT 46. How on earth can you think it is okay to promote a "game" featuring two real countries and a scenario that involves killing and destroying Cuban people and property? Suppose it was a "game" about the French Air Force bombing targets in South West England and destroying the nearest nuclear reactor to Bath? Would you feel so comfortable and jokey about that?

The United States is at war with Cuba – an undeclared war, but a war nonetheless, with a trade blockade in place since 1961 and US-sponsored terrorism conducted against the Cuban people. Cuba therefore has to live in a constant state of readiness in case the United States armed forces *do* attack militarily one day. "Games" like *A-10 Cuba* help to legitimise this possibility, by making it seem that it is acceptable to portray a huge, industrialised country like the US crushing with superior weaponry a small, Third World country like Cuba with, as you say, no reason given.

Tim Young
London NW10

*Does **A-10 Cuba** step over the mark in seeking this degree of "realism"? What about "sim" missions in real theatres of war like Korea, Vietnam, Grenada or Kuwait? I await the flood of responses.*

Uphill upgrade path

In MACFORMAT 47 you printed a letter from a disgruntled Steve Thomas, who complained about the lack of an affordable PowerPC upgrade path for his Performa 630. I find myself faced with the same frustrating problem.

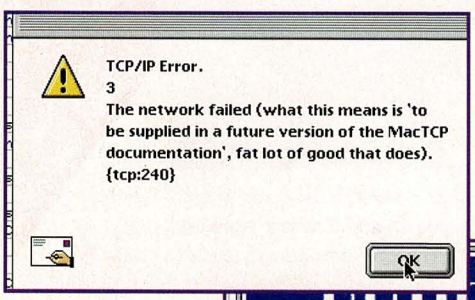
For me, the final deciding factor in purchasing my Performa 630 was a large sticker on the packaging proudly proclaiming "Ready for PowerPC Upgrade". Having been the owner of several lesser computer systems in the past and seen how quickly technology moves on, I thought this promise of upgradability was some guarantee to extending the useful life of my machine. Imagine my dismay when I recently phoned Apple only to be told that the PDS PowerPC upgrade card was no longer available and my only upgrade path was a Performa 6200 logic board replacement at the ridiculously high price of nearly £700. I fail to see how Apple can justify charging prices like this when it promotes its Performa range as an affordable solution for home computing. With Apple so keen to point out a re-purchase loyalty rate of around 80% among its existing home users, isn't it about time Apple showed the same loyalty towards its customers? So, Apple, do the decent thing and bring out an affordable upgrade.

David Bron
Basildon, Essex

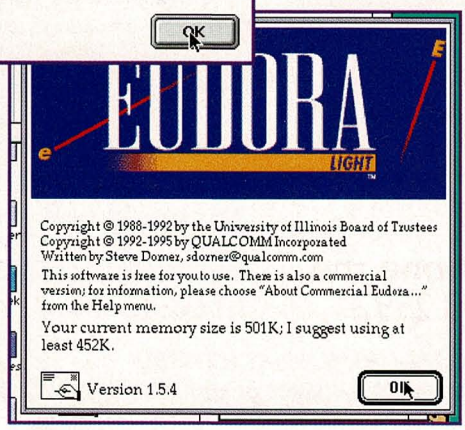
With a brand new PowerMac 4400 costing just a shade over £1,000, and a Performa 6320 not much more, a £700 upgrade hardly seems good value for money. Perhaps the box should have said "Ready for PowerPC Upgrade – if you're ready for the expense!"

Called to account

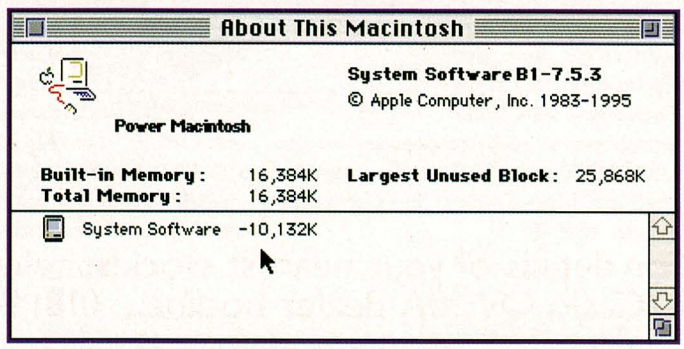
In last month's Editor's letter to subscribers, you say MACFORMAT will champion the Mac as a system for all users, including the home and SOHO user, rather than a system stuck in a graphics/publishing niche. As someone who has been running a small, home-based business on Macs for the last seven years, I would like to point out one of the things that increasingly make


TCP/IP Error.
3
The network failed (what this means is 'to be supplied in a future version of the MacTCP documentation', fat lot of good that does).
{tcp:240}
OK

Silly Things Your Mac Says, number 476: more attitude from *Eudora Pro*, sent in by Lee McNeil of Wood Green, London N22, who got this message when his modem dropped the line.


EUDORA
LIGHT
Copyright © 1988-1992 by the University of Illinois Board of Trustees
Copyright © 1992-1995 by QUALCOMM Incorporated
Written by Steve Dorner, sdorner@qualcomm.com
This software is free for you to use. There is also a commercial version; for information, please choose "About Commercial Eudora..." from the Help menu.
Your current memory size is 501K; I suggest using at least 452K.
Version 1.5.4
OK

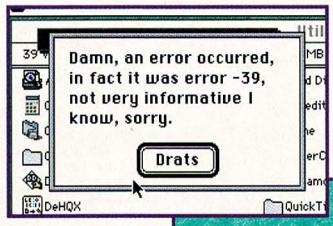
On the other hand, the freeware version of *Eudora* seems to be having a little trouble with its arithmetic. The picture comes from Alastair Montgomery, who comments: "I have heard of not having enough memory to run a program, but never heard of having too much..."



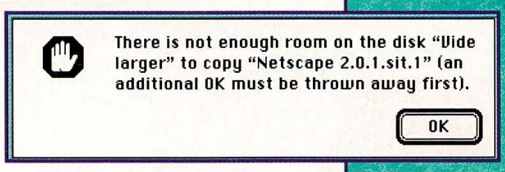
You've seen amazing RAM-Doubled "Total Memory" figures, and inexplicably tiny "Largest Unused Blocks"... Ben Nichols of Guildford sends this impressive example of memory management, saying, "I'll never need to add more RAM!"

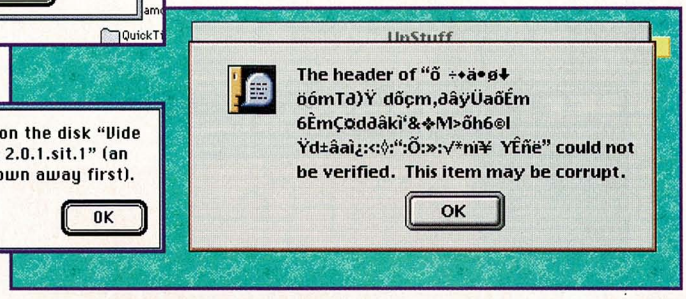
Memory is tight. You may need to increase the applications's memory size.
Your current memory size is OK; I suggest using at least 370K.
□□□
Live Dangerously
Quit

Jonathan Plumb of Ely sent in this confusing message (above). If the current memory size is okay, why is it "living dangerously"...? Oh, wait, I see what you mean... On the other hand (right), you can't throw away zero K, so do I need to trash the "OK" *button...?* This grab is from Patrick Merel, Bordeaux, France.



A rather apologetic message, which Paul Verbruggen of Alkmaar in the Netherlands got while decoding a .BIN file. The run-on sentence punctuation gives it a sort of breathless quality too, don't you think..? Has your Mac given you a Silly Message? Grab it using **[command] [shift] 3** and send it in on disk or by e-mail to **macformat@futurenet.co.uk** with the word "Silly" in the subject line.




UnStuff
The header of "õ ÷•ä•ø↓ öómTd)Ÿ dõçm,ðâÿÜaõÉm 6ÊmÇœdðâkï'&•❖M>õh6◎l Ÿd±âaì¿:<:◊:":Õ:»:√*ni¥ YÊñë" could not be verified. This item may be corrupt.
OK

Possibly an understatement, sent in by Richard Osmond of South Croydon, who says it happened when his Mac tried to unstuff a file that had not completed downloading from the Net when the connection went down, so may have been somewhat garbled...

it difficult to recommend the Mac in this market.

My own field is complementary medicine, where most of the practitioners operate as self-employed sole traders or small partnerships. Just this month two such people who are thinking of purchasing a computer for the first time asked my advice. They had heard that the Mac is easier to use and more fun. Quite right, I said. Now what I want, they both continued, is to do my accounts on the computer, and to use it to prepare nice-looking publicity material – you know, brochures, leaflets, flyers etc. Is there good software on the Mac for that?

Ah, I replied. Actually I do my accounts in an American version of *Quicken*, 'cos there isn't a UK one for the Mac, only for *Windows*. But it's okay if you pretend the dollars are pounds, and pretend *checks* are *cheques*. And there's a great low cost DTP program I use called *Aldus HomePublisher*, but you can't buy it any more. Then there's *PageMaker*. Got an extra £450?

Now before you leap in and tell me they could do all that with *ClarisWorks*, let me ask you: have you tried doing small business accounts in *ClarisWorks* and then in *Quicken* or *MS Money for Windows?* I have, and it's no contest. And have you looked at what's available in the way of small-business-oriented DTP for well under £90 for *Windows?*

Until those two glaring gaps are filled, it's pretty difficult to recommend the Mac in this arena, much as I would like to. Please, please, can you encourage some software publishers to help out.

John Nicholls
via FutureNet

We'll do what we can. How does this issue's free DTP package strike you? Can't get much lower-cost than that. (Even the full-blown upgrade will cost you little more than £100 – see page 19.) But yes, software producers do seem reluctant to release budget programs into a relatively small market, where they have less prospect of high-volume sales. Watch for a round-up of small accounts packages in MACFORMAT *soon.*

System 8 Wish List

Have you ever been fiddling around in a dialogue box, such as one in *QuarkXPress*, where you need to know what half, double, or even 1.025% extra of something is? Well, an answer to our problems would be a System "hardwired" calculator. You could have the calculator come up whenever you hit a certain key combination, such as **[command] [option] [control] [shift] =**, that would certainly be free from clashing. The benefits would be great because you would be able to calculate page widths in mm or inches just by doing simple multiplication.

Richard Fabian
via FutureNet

Actually, you can do simple calculations in ***XPress*** *now – not percentages, but certainly addition, subtraction, multiplication and division. Just place your cursor after the relevant parameter in a dialogue box or in the Measurements palette and type straight in, then hit* ***[return]****. So to add 10mm to the width of a box, you just type* ***+10*** *after the width parameter; to halve the height you type* ***/2****; to treble the length of a line you type* ****3****; and so on. You can even use units different from those set as the default, adding (say)* ***+8pt*** *to the height of a box defined in mm – just type the "****pt****" too and* ***XPress*** *will handle the conversion for you.*

But yes: a calculator you could call up without having all your open Finder windows come to the front would be useful. Any other wishes for Mac OS 8? Send them to "System 8 Wish List" at the address on the opposite page.

Quick tip

Here's a tip: when using *Netscape* (I am using 2.02), after downloading a file, click on it in the folder and select **Get Info...** and it tells you the location of the file. Handy when you can't remember a URL!

Chris Tolstoi(?)
Australia, via FutureNet

Any other tips, techniques and hints? Send them to "QuickTips"... Oops. Sorry – I've lost that space bar again... **MF**

Cruising the Keys

■ **Saving Comments** It's well known that although System 7 enables you add comments to files easily, it also strips them when you rebuild the Desktop database (holding down **[command]** and **[option]** on startup) as Apple recommends you do regularly. And although you can get a shareware Extension to save those comments, you no longer need to, as it's a little-known fact that System 7.5.3 saves comments for you when you rebuild the Desktop database. Now you might start using that box in the **Get Info...** window at last, as you can search for files by their comments. If only Apple had thought of this five years ago...

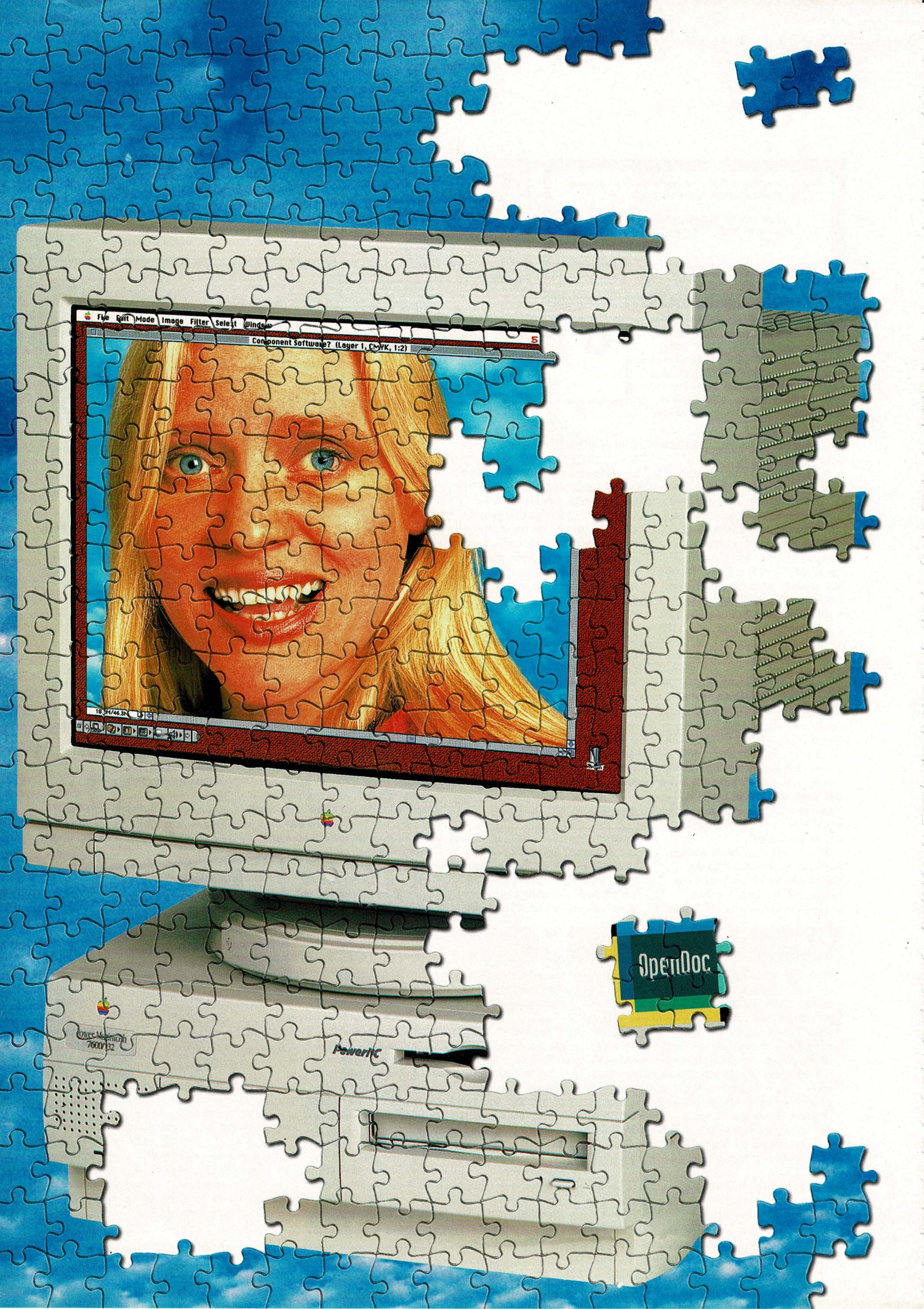
■ **Hidden Easter Eggs** Click on the "Sample text" in the **Colour** Control Panel to show the authors and more. If you click several more times (it can take a while), strange strings like "wubba wubba" and "doodle doodle dee" start turning up...

■ **Secret "About" box** What happened to the good old secret "About" box game that came with System 7.5? (If you had System 7.5 or 7.5.2, you got this game by typing the words **Secret About Box** into the Notepad, Stickies, *SimpleText*, or any other Drag-and-Drop aware text editor, then highlighting the words and dragging them onto the Desktop.) Okay, a game of *Breakout* wasn't that inventive, but the idea of secret Easter eggs like this is a Mac novelty – yet another reason the Mac OS is better and more fun than Windows. Please, Apple... give us it back soon!

David Rowbory, Glasgow, via FutureNet

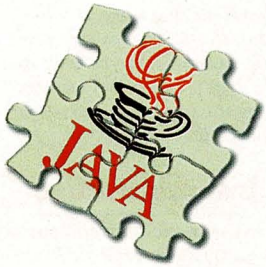
The "secret About box" in the latest System versions (on PCI Macs) gives you this view of Apple HQ in Cupertino, with a QuickDraw 3D animated flag you can control with your mouse!

It's back, but slightly different, as the screen shot shows! Anyone else found any Easter eggs, hidden messages or nifty keystroke shortcuts? Write to "Cruising the Keys" at the address on the opposite page!


File Edit Mode Image Filter Select Windows
Component Software? (Layer 1, CMYK, 1:2)
OpenDoc
PowerPC

A piece of the action?

The whole computer industry's talking about component software – small programs working together within your documents. But is it an idea to shape the future or an over-hyped dead end? Richard Hill looks at Java, OpenDoc and other objects.



Sometimes Steve Jobs could kick himself. During a visit that's passed into computing folklore, he saw a Big Idea and became convinced that he could change the world by bringing the power of computers to the people. If only he'd stayed another few minutes, though, he might have seen another revolution coming – one which is only gathering genuine momentum over a decade later.

Jobs told an audience at the recent Macworld Expo in San Francisco all about it – how the scientists at the Xerox PARC research labs had it all figured out as long ago as 1979. "They actually showed me three things, and I was so blinded by the first that I didn't hang around to find out about the other two, and it took me years to rediscover them."

The first idea Jobs saw at Xerox PARC changed the way we work with computers: the graphical user interface (GUI), a system of icons to click on and menus to browse through, replaced the outdated method of typing commands in. Jobs was instrumental in popularising the GUI with the much-imitated Apple Mac.

The second idea caused shockwaves that reverberate still: computers had been linked and able to communicate for years, but Xerox PARC took a long, hard look at what this meant for the way we use them. Its ideas came to fruition at Jobs's second firm NeXT, whose computers were used for the research project that later gave birth to the World Wide Web.

"Xerox had several hundred computers with network printing, network file service and e-mail," recalled Jobs. "If I'd just stayed another 20 minutes."

A slight oversight

What Jobs also missed then, but supports with his customary missionary zeal today, was component software. The basic concept simply takes the method of using software you're accustomed to, and turns it on its head. Instead of using individual programs like word processors and image editors, often creating several files and merging them into a single document, component software enables you to do everything you need within a single file. Now, when you need a picture in your work, you just pull a picture-making tool into your document. Need a chart? Bring in some chart-making tools.

As a way of working, component software is simple and elegant – but revolutionary? Take the idea further, though, and you start to see how it changes things as it mixes with the two Big Ideas that came before it. Components could be the development that sets the potential of the computer free, bringing its full power into your hands for the first time.

Over the next 13 pages, we'll look at the basic principles behind component software and introduce you to the key systems using these ideas – buzzwords of the hour like Java and OpenDoc. We'll also show you the first software components to hit the Mac, and how you can use them right now on *your* Mac!

Everything you need to try OpenDoc and Java authoring yourself!

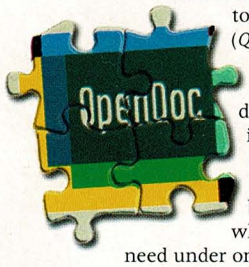
See page 20 for vital OpenDoc and Java Web pages

The third wave

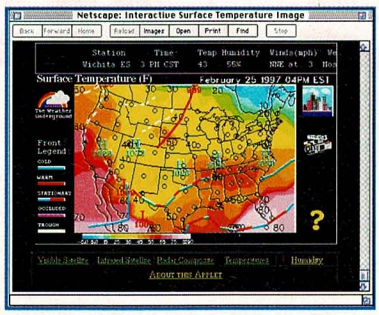
After the rise of the graphical user interface and the Internet, can component software unite with these technological predecessors to offer a new way of computing?

Today's software is fat – bloated with features you don't need and never asked for. That's the view of the part of the software industry following the component software mantra, supported by a wave of companies bringing you new technologies, new software and new ways of using your Mac.

Component software turns the working method you're used to on its head. Before, you might have employed several giant programs (perhaps *Word* and *Photoshop*) to create different parts of a document, stitching text and image together in an assembly tool (*QuarkXPress*, perhaps). You'd use the assembly program to unite all the other documents you've made into one final document. Now, though, you can open a single document, bringing in tools to create whichever elements you need under one roof.



There are several component systems, each offering different opportunities. OpenDoc is the bridge between the old world and the new, enabling conventional programs to take advantage of component technology, while also encouraging the development of new ideas and ways of working. Java is the new world, often divorced entirely from the Mac in your home, school or office – Java programs, or applets, can work across the Internet or any standard company network.



The *Blue Skies* Java object works with satellite receivers to give you up-to-date weather data you can interact with.

The Net's development will prove crucial to the success or failure of component software. At present, many people still find the Net an alien, foreboding environment. Components can act as agents on your behalf, providing a link between information on the Net and information on your Mac's hard drive.

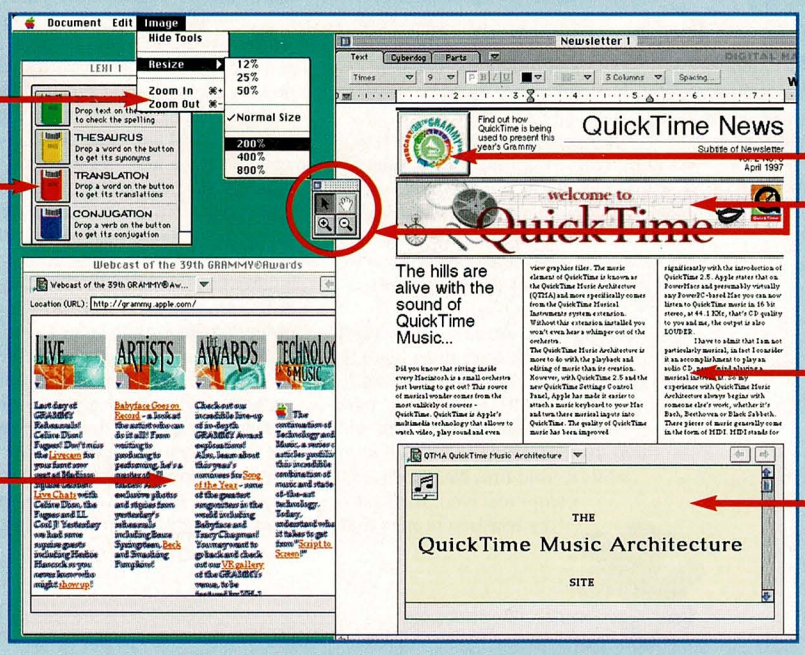
Using these connections, you can build a document tailored to perform a task and update itself automatically, essentially making your own simple program without any programming knowledge. The idea is taken to its furthest extent in OpenStep, the operating system soon to be reborn as Apple's Rhapsody OS. It offers programmers ready-made components. For example, virtually every program will include a text box for typing into, so NeXT Software's programming tools provide you with one. This way, each programmer can concentrate on the parts that make their program unique.

Industry reaction

Many of the software industry's giants have reacted to component software with muted enthusiasm. Even the forward-looking

Inside a component document

No single object can do everything one of your favourite programs can, but use them together and you learn how potent the combination can be. We built this super-word-processor ourselves: the *Wav* word processor, embedded *Cyberdog* Web page, *Lexi* spell-checker, *Apple Image Viewer*...



Each object can have its own menu options, which appear only when you select it.

The spell-checker is a separate object, able to check text within any other object.

This Web page is a separate object, linked to the main page at far right.

This is a "live button" – clicking on it opens up the Web page at bottom left.

This image viewing component has its own set of tools (circled).

Many objects need a container, which can be a document like a word processing page, a Web page, even another object.

This is actually a live, usable Web page, embedded within a document.

Netscape: C100 Members
Adrenaline Software, maker of Adrenaline Numbers and Chaos.
Apollo Technologies, maker of InstantSpace.
Apple Computer, Cyberdog
B & E Software GmbH, maker of RegTime 4.
ComGraffix, Inc., maker of GeoInsight.
CORDA TECHNOLOGIES
Corda Technologies, maker of C-Graph and C-Table.
Digital Harbor, LC, maker of WAV.
Eclipse Services, maker of Canopy Outliner.
guideWorks, LLC.

Like the objects they've built, the Component 100 firms have banded together to form a stronger bond.

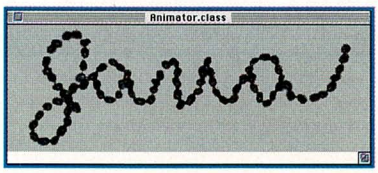
Macromedia, which has been quick to introduce its Java writing kit *AppletAce*, has so far resisted converting its established programs into components. The dilemma for each firm is whether it should create components to replace its existing products, exploit the technology only for fresh ideas – or ignore the concept completely.

Speaking at the recent San Francisco Expo, MetaTools' Chief Design Officer Kai Krause opted for the latter option. "I keep hearing about Java objects. Imagine the guys at BMW designing a new car, and before the car comes out, they're waiting for the generic steering column part to be delivered... It's never gonna be a BMW that way.

"It's always going to be a special team of people that takes pride to take something to the utmost extreme in possibility, that's going to be the cool stuff. You can't have generic objects issued by a body of people through Java, and expect real quality and difference."

Even Krause, though, is working on a set of MetaTools-only objects. Corel, on the other hand, is embracing the new wave more whole-heartedly, by adding OpenDoc features to its *WordPerfect* word processor and even launching an entire suite of Java business tools in the form of *CorelOffice for Java*.

Component software is really surging into life, though, through the efforts of small, brand-new companies. These firms don't mind if the potential audience for their products is restricted for a while: catering for the earliest adopters of component software gives them a chance to build up their business and gather a reputation. Adobe, Microsoft and Apple didn't get big by playing safe.



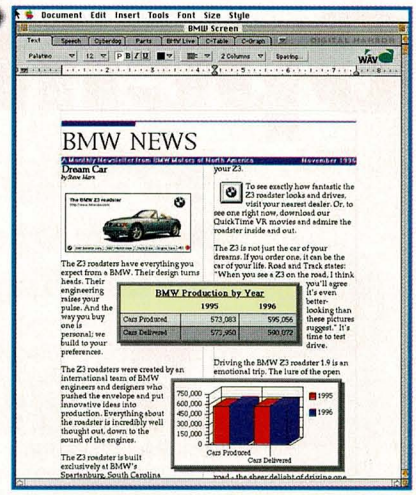
Originally the most common use of Java was to display animations on the Web, but it's broadened far beyond that now.

Meet Component 100

Some of component software's distinctive qualities enable the minnows to take on the sharks at their own game – in fact, the way components can work together practically insists that firms pool their resources.

Component 100 is a loose affiliation of largely new firms creating OpenDoc products. Together they've agreed on software standards so their products work together more effectively. They've also hired Support Central, a helpline organisation which deals with Microsoft and Corel customer problems, for example, to handle customers' acclimatisation to OpenDoc. Imagine the alternative: you'd have to call two or three helplines depending on the combination of components you're trying to use.

The umbrella organisation also orchestrates joint marketing campaigns and makes it easier for members to band together to offer complementary bundles of software. Component 100 aims to be more than the sum of its parts. ➤



Any component system enables you to embed objects within a document – this *Wāv* page includes an image viewer, a live button and table and graph parts.

Component trade

The ideal component is compact, tailored to do a few specific tasks extremely well. The idea is to keep the demands on your Mac's memory as low as possible, but this fundamental requirement of component design gives you freedom in more unexpected ways.

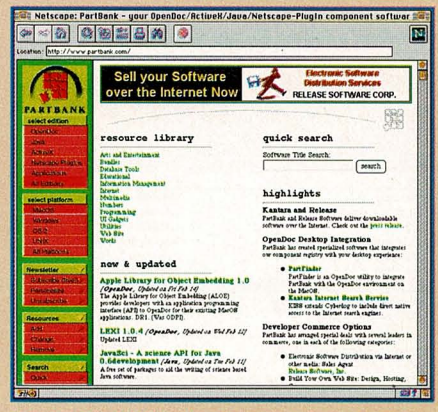
Software firms and financial corporations have dabbled with the idea of on-line commerce ever since the Internet started its phenomenal growth in popularity earlier this decade. The advantages of buying software on-line should be irresistible, but potential customers have been put off so far, both by concerns about credit card security and by the more basic issue of the hassle of using the Net itself for downloading your software once you've bought it.

Global financial corporations like Visa and MasterCard are working hard to remove the former perceived barrier, while components' size (not to mention their generally low prices) makes them a natural for selling over the Web. You can download the average applet in a little over a minute, which has to come as a relief if you've ever spent a frustrating half-hour trying to load a game demo from a busy Web site.

We're already seeing the first traders to latch onto the advantages of component selling. PartBank (http://www.partbank.com/) specialises only in components of all types, with Java, OpenDoc and ActiveX leading the way. PartBank is the epitome of the modern on-line trader, with flexible options for finding the precise component you need. The presence of so many low-priced objects in one location, coupled with the ease of getting hold of them, makes PartBank an impulse buyer's heaven.

BuyDirect (http://www.buydirect.com/) has added component software to its more traditional fare of games and applications, while GameLAN (http://www.gamelan.com/) has quickly become the leading storehouse for giveaway Java applets. Its selection has broadened enormously, from the entertainment components it began listing, to a confection of business and graphics tools.

BuyDirect is a full-scale software store on the Net, enabling you to buy and download programs on the spot. Objects are ideal for this.



The PartBank Web site offers only components. You can even download a free object that automatically finds ones you need for you.

OpenDoc

The easiest way to get into component software, Apple's OpenDoc offers powerful, flexible tools for building up cohesive documents.

ON THE CD

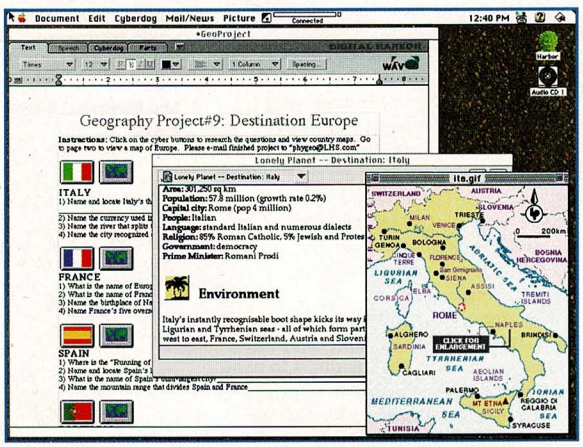
Find OpenDoc in the Component Software folder

Apple's own OpenDoc system is the heart of component software on your Mac: it's the route through which you'll be able to use not only OpenDoc components themselves, but also objects from other related technologies like Java.

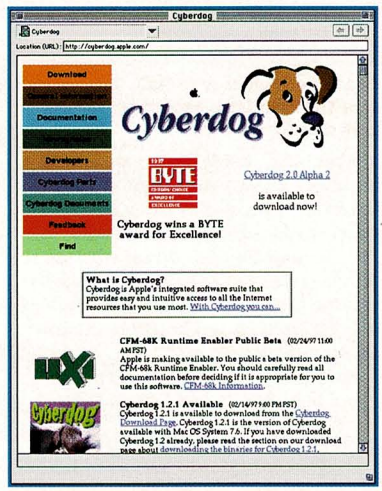
OpenDoc is a good introduction to component software for another reason – its objects are the most like the Mac programs you use today, with menu commands of their own, for example. You can already get OpenDoc word processors, spreadsheets, image editors and Web browsers – it's just that you can have all these and more within the same document.

OpenDoc uses small programs called Editors, written to perform certain tasks. You use these not by opening the Editors themselves (which are tucked out of sight in the System Folder), but by opening an item of Stationery, a document made with the tool you want to use. If the Editor is designed to work with Stationery, you'll be given a blank document when you first get a new editor.

You can keep your OpenDoc documents anywhere on your hard drive, but OpenDoc creates a folder called "Stationery" as a suggested storage area. One document acts as a container, holding other pieces of Stationery within its perimeters. You can add parts simply by grabbing the relevant piece of Stationery and dragging it into your container. Whenever you click on a part within an OpenDoc document, you'll see the menus at the top of the screen change; you may also see new floating tool palettes appear (when you use the *Apple Draw* part, for example).



Some OpenDoc Editors activate automatically – drag the image on the right into a document, and the *Apple Image Viewer* will start.



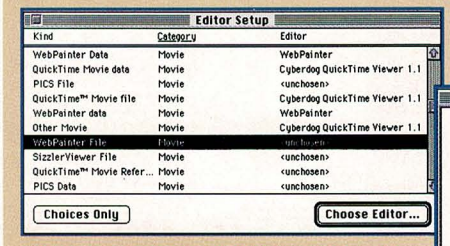
One of the most essential OpenDoc parts, *Cyberdog* is a Web browser like *Netscape*, but offers much more besides.

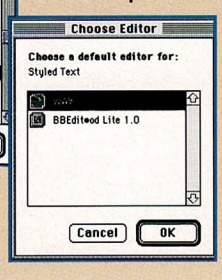
Installing OpenDoc

We've provided the complete OpenDoc on our Cover CD for you to try out, along with *Cyberdog* and several demo Live Objects. Each separate part is available in its own folder. Make sure you install OpenDoc before installing any other software, then restart your Mac when you've finished, so you can start using OpenDoc's Live Objects.

The next thing you should do is to open OpenDoc's Editor Setup Control Panel. This lists the most common file types, from basic text to various types of image and multimedia formats. You should select one of your installed Live Objects to handle each of these formats. Double-click on each file type to see a choice of Live Objects to select. Configuring the Editor Setup means you can often simply drag-and-drop a file into your OpenDoc document; the appropriate Live Object will start up to display the file, and you won't have to worry about what type of file it is.

Now it's time to start using OpenDoc to the full. You'll find a new folder called Stationery on your hard drive and this contains the documents you need to get started. Try starting with the *Wāv* file by double-clicking on it, and this will give you a word processing document. You'll notice that *Wāv* offers menu-based functions along with pop-up selections at the top of the document.





Editor Setup enables you to automate your OpenDoc system, so you can load editors according to the type of file you introduce. Click on each file type and make a selection.

If you return to the Stationery folder, you can now drag-and-drop another component inside your *Wāv* document – try Corda's *C-Table*. You can use the edges of the new component to change its size or position it within your page.

Now enter a simple set of statistics into *C-Table* – your earnings and outgoings for the last three months, for example. Drag in a second component, *C-Graph*, then return to your *C-Table* area and highlight your set of numbers with your mouse. Grab hold of the highlighted figures and move them on top of *C-Graph*, so that the latter is highlighted. When you let go, the graph will change automatically to chart your set of figures.

Important warning!

We recommend a PowerMac with 16Mb of RAM for using OpenDoc at present. **The system will install on a 68K Mac (including LCs, Quadras and the Performa 475 and 630), but a serious bug in an Extension called the CFM-68K Runtime Enabler means *you risk losing files on your Mac's hard drive* if you install and use OpenDoc on these Macs. A fixed version of the Runtime Enabler will be available soon. Neither MacFormat nor Apple can accept responsibility for any data losses you may incur from installing OpenDoc.**

It is safe to use OpenDoc on any PowerMac (including PowerPC Performas such as the 5200): PowerMacs don't need the Runtime Enabler, so it isn't installed at all.

Meet the family

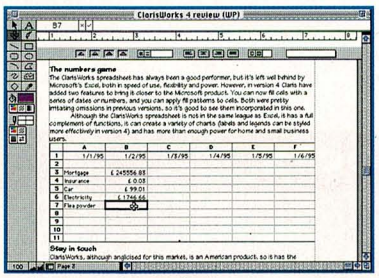
There's already a healthy selection of OpenDoc components to choose from, with more on the way. Here's our suggestions as to which ones should play a part in your set-up.

Containers

Each OpenDoc document is based on a container, with the main document which plays host to other parts embedded within it. Text Live Objects like *Wāv* or image editors like *Apple Draw* function perfectly well as containers, but you'll soon be able to contain OpenDoc parts within some more familiar packages.

The first established program to add the ability to use OpenDoc Live Objects is ***Nisus Writer 5.0*** (reviewed on page 88). *Nisus* sets the pattern other programs will follow: while it remains a self-contained program rather than becoming a set of components itself, version 5.0 can now incorporate Live Objects within its documents. Try out the demo version on this issue's Cover CD.

The most visible of the programs set for later in the year will undoubtedly be ***ClarisWorks 5.0***, the latest version of one of the Mac's flagship programs. With its integrated suite of word processing, spreadsheet, database and graphics tools, *ClarisWorks* should prove a natural for OpenDoc, although its tools won't be split into separate components for version 5.0. The program's arrival will mean that far more people gain easy access to OpenDoc's flexibility.

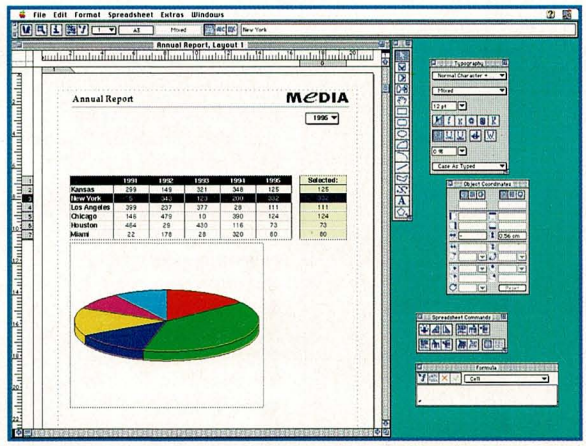


Already similar to OpenDoc in some respects, *ClarisWorks* is being rewritten to include the ability to add Live Objects.

WorldSoft's ***WorldWrite*** is less well-known than either *Nisus* or *ClarisWorks*, but the word processor is a favourite with writers who work in several languages. WorldSoft is taking an interesting approach designed for anyone who doesn't have OpenDoc. You can save a document you've made in *WorldWrite*, including OpenDoc parts, then send it to a colleague who doesn't use OpenDoc. He will see information like embedded *Cyberdog* Web pages as straightforward images. Of course, if he'd had OpenDoc, the Web part could have logged onto the Net and shown him the very latest page, but he knows best...

Corel's ***WordPerfect*** adds the ability to host Live Objects with the forthcoming version 4.0, maintaining the company's position as a committed object software proponent. (It's also working on a full Java business suite – see page 44.)

B&E's ***RagTime 4.0*** is the odd one out for the first wave of container programs, as it offers more than word processing. This document processor has a full selection of page layout, spreadsheet, drawing and, yes, word processing features in one convenient package. Previous versions already employed the concept of embedding components within documents, so adding OpenDoc is a welcome move.



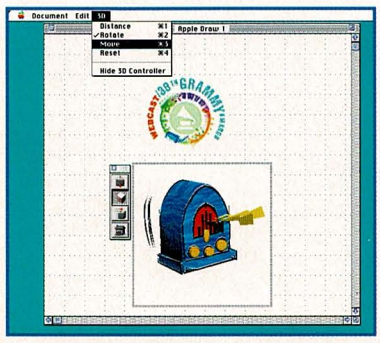
***RagTime* is set to add OpenDoc to its own component-like methods of working.**

MetaMind's ***Dock 'Em*** is a program specially designed to act as an OpenDoc container, uniting the worlds of print and electronic publishing. Whether you want to create a printed document, an interactive presentation or a Web page, *Dock 'Em* gives you the tools you need. Using its construction tools and other Live Objects, you can arrange text, images, video clips and Net and database information, adding buttons to control your use of the material. Try the demo on our Cover CD. You can contact MetaMind Software on 00 1 415 381 8063.

We review *Nisus Writer 5* with OpenDoc on page 88

Live Objects Essentials Kit

Free with OpenDoc, the *Essentials Kit* gives you a suite of workmanlike Live Objects.



Apple's *Essentials Kit* gives you the tools you need to start your OpenDoc work.

Objects like the *Apple Image Viewer* offer simple tools for everyday tasks. None of them is an especially compelling piece of software, but that isn't why they were written. By using the Editor Setup Control Panel, you can use these Live Objects to give your OpenDoc system the ability to display the most common types of file format automatically.

If you're working with *Wav* and *Cyberdog*, for example, you might want to drag an image from the Web page straight into your *Wav* document – except that *Wav* cannot display images by itself. Relax – just drag the image across, and the *Apple Image Viewer* will start up automatically to show the picture.

Over time, you'll probably buy Live Objects that can do anything the *Essentials Kit* software can, and much more besides, but at least the basic tools are there straight away, enabling you to be productive from day one.

Essential!

Apple Audio
Records and plays back sound files within any OpenDoc document

Apple 3DMF Viewer
Displays QuickDraw 3D models, including textures (requires QuickDraw 3D)

Apple Draw
Offers *ClarisWorks*-type basic drawing tools, such as lines and polygons

Apple Image Viewer
Displays the most common image file formats – PICT, TIFF, JPEG and GIF

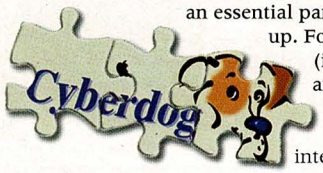
Apple Button
Creates buttons you can add designs to, then make live to trigger other objects

Apple QuickTime Viewer
Displays QuickTime video clips and QuickTime VR virtual environments

Cyberdog

ON THE CD

Apple's Web suite of OpenDoc tools was initially created to demonstrate what can be done with the system, but its power makes it an essential part of any component set-up. Fortunately, *Cyberdog* is free (it's on our Cover CD) – and it will make you see the Net in a new light.

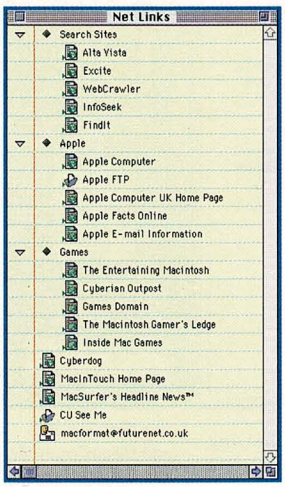


Cyberdog enables you to integrate Internet-based material into your work in a way that simply isn't possible with normal Web browsers like *Netscape Navigator*. It has a suite of Live Objects for accessing and displaying Web pages or newsgroups, for example, just like existing browsers – but then you can transplant the Web page into a document. Next time you open that document, which might be on another Mac entirely (as long as it also has OpenDoc, *Cyberdog* and a Net connection), the *Cyberdog* part will link up to the same Web address and display the latest page it finds there.

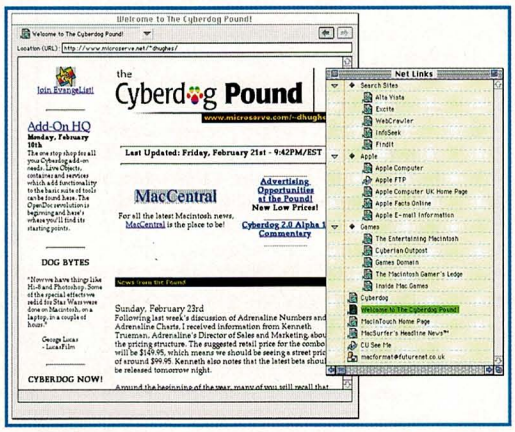
Cyberdog can also fetch live information from newsgroups or FTP sites, for example, depending on which of its parts you've used. By linking these live reports to other parts in your document – a charting object, for instance – it's possible to write documents which give you the latest information on a certain subject each time you open up. In effect, you've written your own simple, customised program.

Instead of *Netscape's* Bookmarks for listing favourite sites, *Cyberdog* has Notebooks. These are Live Objects with a natty lined paper design, into which you can drag any Net destination you like – Web pages, e-mail addresses or FTP folders, for example. Of course you can incorporate a Notebook within another OpenDoc page.

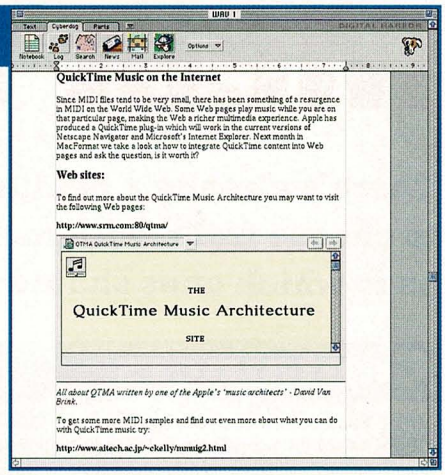
The ability to use CyberButtons lies in a separate Live Object. These are interactive controls for opening up any *Cyberdog* browsing tool. You can place a CyberButton anywhere within your container document, add text and graphics onto the button, then pull a Web address onto the button using the icon at the top of the *Cyberdog* browser. Voilà – instant Web connection at the touch of a CyberButton.



Create a *Cyberdog* Notebook and keep track of all your favourite Net destinations. Just double-click on an icon to open the page once more.



Flexible, powerful and always wagging its tail: *Cyberdog* is a free program that sets you on new paths in your everyday use of the Internet.



You can easily embed *Cyberdog* pages within other documents. Open the page and drag its icon to wherever you want it to appear.

Latching onto the possibilities of this, Apple has also included the *Cyberdog DocBuilder*, a program for designing and building your own interface for displaying Net-based information. You can use *DocBuilder* to create your own personalised interface with the Net, dropping CyberButtons with images or labels

Playing their parts: more Live Objects

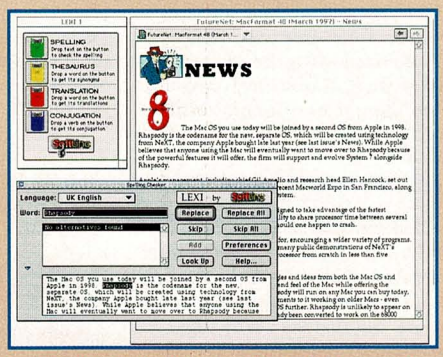
Lexi

ON THE CD

***Lexi* is an essential writer's utility, enabling you to check your spelling and grammar in many different languages. It also offers a thesaurus for those occasions when you just can't summon up the right... um, word, and you can check your translation work using any of its 15 language dictionaries, including French and Spanish.**

***Lexi's* advantage as a self-contained Live Object is simple: by following an OpenDoc standard called Word Services, it can check any text you like, not just the contents of your word processing document. The text can be within a spreadsheet or even an image editor – just highlight your selection within an OpenDoc page, then drag it across to the appropriate *Lexi* button for checking. The thesaurus and translator handle one word at a time.**

***Lexi* offers dictionaries in 15 languages (other than English in American and original flavours). Try out 11 of them with our Cover CD demo.**



***Lexi* is able to check text not just within a word processor, but from any OpenDoc part. Here we're just checking a Web page shown by *Cyberdog*.**

***Lexi's* full English dictionary contains over 212,000 words, and you can add words to it as easily as you could with any built-in, non-portable spell checker. If you use several word processing and page layout tools within OpenDoc, you now only need to maintain one dictionary. You can also set it to correct your most common slip-ups, like typing "hte" instead of "the".**

***Lexi* comes in several different configurations, tailored to your specific requirements. A single-language spell-checker costs just $19 (£12), for example, while a dual-language spell-checker, translator and thesaurus costs $49 (£30.50). Contact SoftLinc on 00 1 941 642 7979 or visit the Web site http://www.softlinc.com/ for more details.**

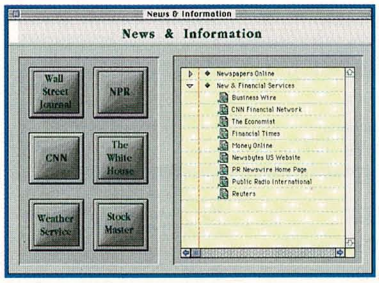
BBEdit Lite

ON THE CD

***BBEdit* has become one of the industry's most highly-regarded Web page editors by using the straightforward principle of enabling you to edit HTML code directly. *BBEdit Lite* is a popular free program with fewer of its parent's text-editing bells and whistles, and now there's a *Lite* version which works inside OpenDoc. Again available for nothing, it should prove useful for modifying and customising pages displayed by *Cyberdog*. Take a look at the full BBEdit range at http://www.barebones.com/, or call the distributor Full Moon Software on 01628 660242.**

Rapid-I Button

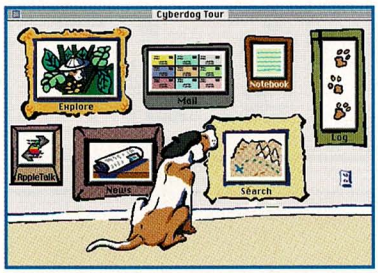
Hutchings Software's compact component



Cyberdog's DocBuilder enables you to build personalised interfaces to the Net, which you can pass along to others.

onto a DocBuilder page, where you can also add a background image and a guide to the sites you've included.

You needn't feel limited to using only *Cyberdog* for your Web work, either. Apple is encouraging other firms to produce their own Net objects which you can swap with any *Cyberdog* part, then use with the rest of Apple's extraordinary suite. It's the program that deserves to establish OpenDoc as a must-have item.



A Net interface like you've never seen it before, this is Apple's own example of what you can do with *DocBuilder*.

Wāv

ON THE CD

Digital Harbor's *Wāv* (pronounced "Wave") is an OpenDoc word processor as responsive and powerful as any conventional rival, offering familiar tools to enable you to select fonts, text size and styling, add headers and footers and justify text, for example. *Wāv* is purpose-built to do much more, though.

You can introduce elements such as tables, graphs, pictures or live Web pages into *Wāv* using other OpenDoc parts, then use *Wāv* to structure and annotate your information into a coherent, well-presented final document. *Wāv* offers multi-column layout, so with OpenDoc image viewers added you've almost got a full desktop publishing program. You can click in any area of the document and just start typing – there's no need to use line returns and tab commands to get the cursor to the position you want.

Digital Harbor is using ideas within *Wāv*, like its intelligent tab system, that enhance the entire way you use OpenDoc.

Good value even as just a $50 word processor, *Wāv* uses OpenDoc to offer you far more.

Digital Harbor is also behind a neat idea used well in *Wāv:* you'll see that a *Wāv* document includes a tab sheet at the top, which displays some of the word processor's main features – the sort of icon-based menu you often see in programs nowadays. But add another OpenDoc part like *C-Table*, and you'll see a new tab appear, with features derived from the component you've introduced. Digital Harbor has created a new interface for OpenDoc, which is able to display any piece of OpenDoc stationery as a tab sheet within *Wāv*. Tab sheets for compliant objects like *Cyberdog* appear in *Wāv* automatically if the part is installed.

You can even drop-and-drag a *Wāv* document you created earlier into the tab sheet, giving yourself easy access to images and other files you used in it. If you find the relationship between OpenDoc Stationery and Editors difficult to grasp, *Wāv* offers a more familiar way of dealing with all the different elements.

Wāv costs $49.95 (around £31) from Digital Harbor, who you can contact on 00 1 801 224 1412. The firm's Web site is **http://www.digitalharbor.com/** ➤

enables you to create more impressive buttons than you could with either *Apple Button* or *Cyberdog's* button tool.

Rapid-I Button's features include flexible text-formatting – any font, any size – with 12 ready-made designs available immediately. You can trigger a *Rapid-I* button to open a Web page or folder on your Mac, or even to activate an AppleScript file, which could start a program running for you, for example. Hutchings is also working on OpenAction, a new OpenDoc standard which would enable buttons to activate any other OpenDoc components. *Rapid-I* costs $14.95 (£9.50) from Hutchings Software – visit the Web site **http://www.hutchings-software.com/** for more details.

Netscape Navigator

The world's most popular Web browser is set to appear within OpenDoc. Netscape is working on a Live Object version of its *Navigator* browser, which you'll be able to swap with parts of the *Cyberdog* suite for an enhanced Web experience. Netscape's Web site is of course **http://home.netscape.com/**

PartFinder

If you're not convinced that OpenDoc unlocks the power of the Internet, try *PartFinder*. The free Live Object monitors your use of OpenDoc – if you're sent an OpenDoc document which includes information you don't have an editor for, *PartFinder* will detail the packages available at the PartBank Web site, asking if you would like to buy and download any of them immediately. See the Web site **http://www.partbank.com/** for details.

WebPainter

Totally Hip Software's *WebPainter* was originally designed to enable you to create images and animations for Web pages. A forthcoming OpenDoc version will integrate *WebPainter's* tools within a component, so you can create visual material directly within an OpenDoc page. Find more about WebPainter at **http://www.totallyhip.com/**

Canopy Outliner

Outliners are a staple of business programs, helping you if you're an author or a presentation writer to organise the structure of their work. Eclipse's *Canopy Outliner* uses OpenDoc to enable you to employ images, video or even Web links alongside text as you draw out your plan. *Outliner* stores elements within an outline in a database, which includes relational tools, so you can link outlines together, modifying several automatically if you update a key element elsewhere. Check out the Web site **http://www.eclipseservices.com/**

LiveAccess

Theta's *LiveAccess* is a sophisticated tool for displaying your existing database files within an OpenDoc document. *LiveAccess* can handle files made with *FileMaker Pro, 4th Dimension* and other top-level databases. You can use it to search through your records with familiar controls like buttons and check boxes, all without having to learn the host program first. You can also link your database files with charting parts like *C-Table* for instant graphical reports on the latest figures. Contact Theta in Germany on 00 49 721 913240, or visit the Web site **http://www.thetagroup.ilk.de/**

InstantSpace

Working with or without *Cyberdog*, *InstantSpace* is an ambitious 3D interface for the Web, helping you find your way around complex sites. The component uses a separate program called *SpaceDoc* to offer a storage area for your favourite sites. *InstantSpace* is set to appear this spring from Apollo Technologies. See the Web site **http://www.apolloll.com/** for details.

Corda Live Objects

ON THE CD

Corda Technologies' set of three Live Objects offers an elegant complement to word processors like *Wāv*, giving you control over the appearance of tables and charts within a document.

C-Table is a basic table editor with plenty of tools for altering a table's appearance, while *C-Graph* does the same for charts and graphs. Each component offers simple controls for altering a diagram's format, often enabling you to alter properties like the depth of bars in a graph by dragging backwards or forwards with your mouse. It's easy to set up a good-looking diagram in a couple of minutes or less.

Growth Equity Funds			
Average Annual Total Returns as of 12/31/95			
	1-Year	5-Year	10-Year
Select	22.7%	10.2%	11.8%
Growth	20.4%	14.8%	14.2%
Heritage	46.1%	22.4%	19.8%

Products From Various Countries				
Product	USA	Japan	Korea	Canada
Gloves	821	943	543	123
Socks	654	234	421	876
Shoes	123	342	912	432
Shirts	782	33	187	589

256.2% (10-year)	106.8% (5-year)	13.6% (12-year)	15.6% (5-year)	12.9% (1-year)
Cumulative Total Returns		Average Annual Total Returns		

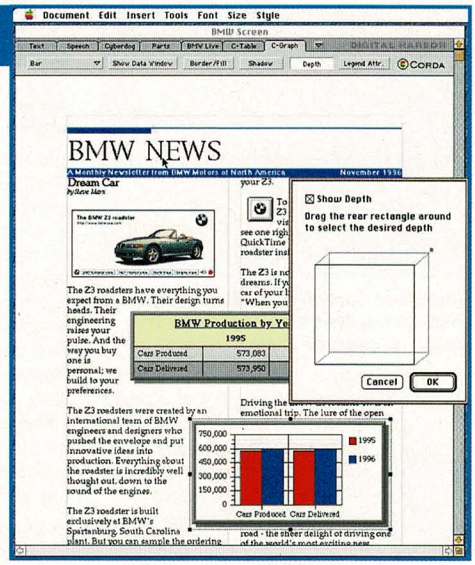
As these examples show, *C-Table* is capable of making the driest statistics look interesting.

The third Live Object from Corba is *C-TextBox*, an apparently rudimentary text editor that comes in handy more often than you might suppose, even within a flexible word processor like *ClarisWorks* or *Wāv*.

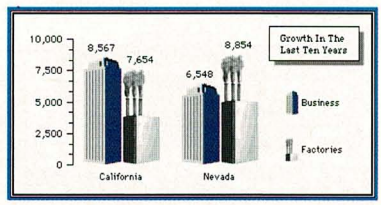
C-TextBox enables you to position text more precisely than you might otherwise be able to in your word processor, working with *C-Table* and *C-Graph* to add descriptions or captions to your diagrams, for example.

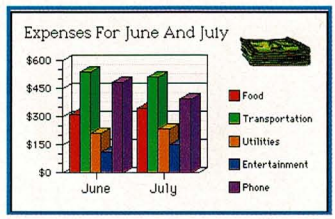
Corda is an active member of the Component 100 organisation. It's linked its Live Objects into *Wāv's* intelligent tab controls system, so you can use any of the parts simply as an extension of Digital Harbor's word processor if you wish.

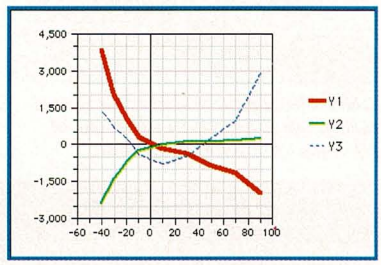
The set of three parts costs $36.95 (£23) direct from Corda – contact the firm on 00 1 801 763 0517 or check the Web site **http://www.corda.com/** for more details. to find some good offers at PartBank Corda is one of the most active companies at offering its Live Objects as part of larger software bundles, so you're likely to find some good offers at the PartBank Web site, for example.

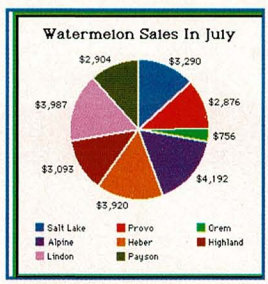


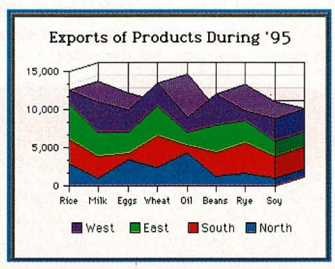
Shown here within *Wāv*, *C-Table* and *C-Graph* are easy to operate, relying on mouse movements to make changes.











***C-Graph* is a versatile graphing Live Object, which can interpret material imported from *C-Table* in all sorts of dynamic formats.**

Numbers and Charts

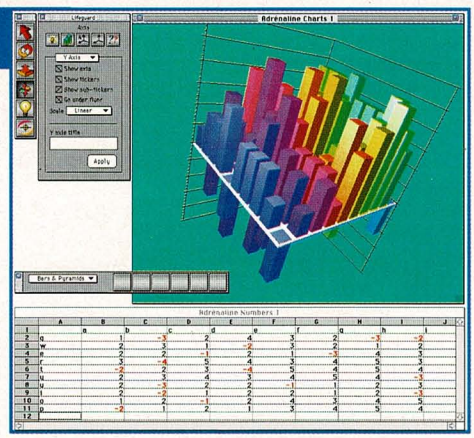
Also making excellent use of the suite concept, Adrénaline's duo of Live Objects offers a complete solution for working with figures. *Numbers* enables you to carry out serious tasks with meaningful results, while *Charts* gives you the chance to show off those results in spectacular fashion.

Numbers is simply a powerful OpenDoc spreadsheet; enabling you to create sheets of figures such as finance budgets or statistical records, using formulae to make calculations for you as the figures change. You can create massive documents with 32,000 elements in each direction, and open documents made with *Excel*, the Mac's most-used professional spreadsheet program.

Charts links elegantly with *Numbers*, enabling you to display the results you've processed through your spreadsheet. Setting up a chart is a simple matter of highlighting the relevant part of the spreadsheet and dragging it into the *Charts* component.

You can display the figures and labels in over 20 different ways, including basic bar and line graphs – but it's the 3D effects that will make you gasp. *Charts* uses Apple's QuickDraw 3D system to enable you to set up instant 3D graphs. You can drag images, textures or even videos onto any element within the graph, or replace the blocks within the graph with other QuickDraw 3D objects. You can change the graph perspective at any point by grabbing it with your mouse and twisting it round.

For more details on these powerful tools, contact Adrénaline Software in Canada on 00 1 418 658 9909, or visit the Web site **http://www.adrenaline.ca/**



Create tables in Adrénaline's *Numbers*, then transpose them across for spectacular 3D results in *Charts*.

Great software.

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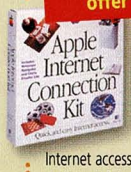

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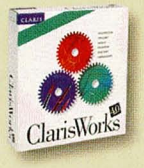

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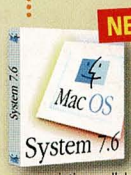

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JAZZ 1GIG EXT IOMEGA	£349.00	£410.07
230MB INT OPTICAL	£329.00	£386.58
230MB EXT OPTICAL	£350.00	£411.25
650MB EXT OPTICAL	£450.00	£528.75
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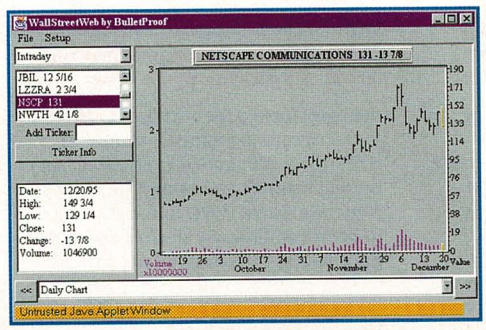
Full of beans

Java is gathering more industry support than any of the other component technologies, but you've barely felt its impact so far. Can Java really end the operating system wars?

What is it about Java? Within two years of its initial launch, Sun's programming language has grown from nothing to become the word on everyone's lips. It's developing at a dizzying pace. Look over there – Java is already part of the leading Web browsers. Now look over here, where Apple is announcing plans to blend Java into the Mac OS itself. A third glance reveals the first programs based entirely on Java, sold in glossily-produced packages just like the Mac programs you use every day.

Yet if you've been following the Java story so far, you might be forgiven for wondering what all the fuss is about. It seems like a confusing mish-mash of ideas linked by an impenetrable network of jargon like Java Beans and HotJava. To most people who've used it, Java is still just another way of showing animations within a Web page – but it's capable of far more than that. You'll soon see Java word processors, spreadsheets and graphics programs similar to the ones you have on your Mac now.

Delve deeper into how Java works, though, and you'll discover that it's about more than re-inventing the wheel.



Have a virtual flutter: Bulletproof Corporation's *WallStreetWeb* is a commercial product that gives you constant analysis of stock market figures.

You can download Apple's Java Virtual Machine from the Web site http://applejava.apple.com/

Inside Java

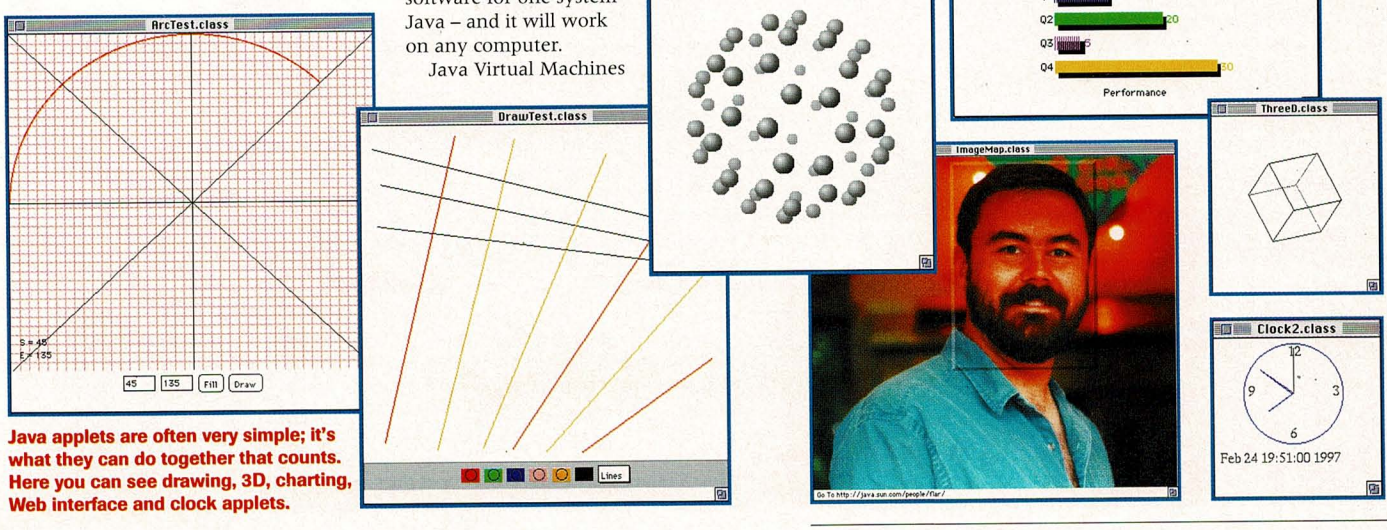
Java is a language for writing programs, providing a grammar for the series of instructions that a program has to follow while it's running. Usually, programs work directly within an operating system, which provides a consistent framework so that you don't have to learn a new way to operate menus or print a document with each new program. The differing approaches to this have led to the rivalry between OS's like the Mac OS and *Microsoft Windows*.

For the programmer, this system means having to rewrite your program to work under each OS, if you want it to reach the widest possible audience. For you, it means worrying about whether a program you see in the shop will work under your operating system, it means long waits between program improvements, and it means expensive software.

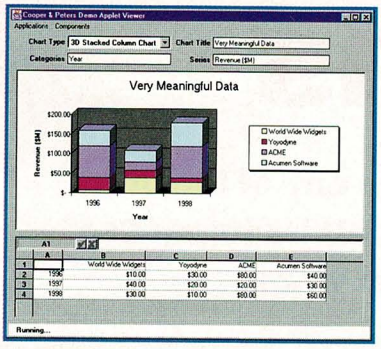
Rather than working directly under the OS, a Java program instead works within a Virtual Machine, a program written for each OS specially to host Java software. The programmer need only write software for one system – Java – and it will work on any computer.

Java Virtual Machines may be on your Mac right now: there's one in the current versions of both of the leading Web browsers, *Netscape Navigator* and Microsoft *Internet Explorer*. Its presence in these programs demonstrates another way in which Java stands out: you don't have to have the programs that do your work installed on your hard drive at all. They'll work just as well from a computer elsewhere in a company network system, or on an Internet-linked computer on the other side of the world. Java's independent spirit makes it easier to use and opens up new possibilities for creative programmers. See the "On the boil" box on the next page for a few glimpses of what's coming up.

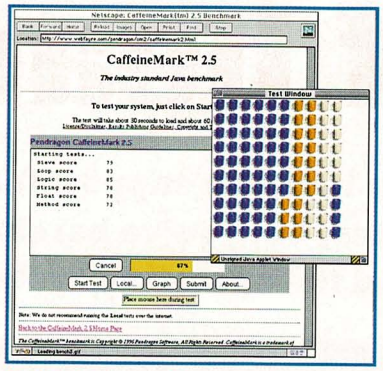
Java is moving beyond the confines of the Web browser window, though – Apple is adding it to the Mac OS itself ➤



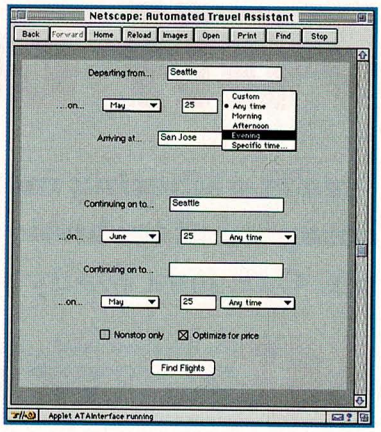
Java applets are often very simple; it's what they can do together that counts. Here you can see drawing, 3D, charting, Web interface and clock applets.



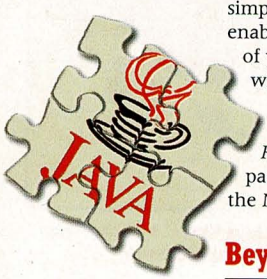
Cooper & Peter's *EyeOpener* is a Java office suite with word processor and spreadsheet among its applets.



***CaffeineMark* test-drives your Java system and gives it a CaffeineMark rating.**



This experimental *Automated Travel Assistant* shows which flights are available between cities of your choice.



with *Mac OS Runtime for Java*. The dry title simply indicates that this software enables you to run Java applets outside of your Web browser if you prefer – within an OpenDoc document, for example, or simply as a self-contained application. *Mac OS Runtime for Java* is due to appear as part of System 7.6, the latest version of the Mac OS.

Beyond the computer

Java grew out of a Sun programming team's frustration with having to rewrite software so often for rival computers, but the team looked far outside the conventional computing industry during its research. It dismantled everything from remote controls and cable TV boxes to Nintendo Game Boys, looking for ways to get these disparate devices exchanging information with each other.

Java promises to deliver on its creators' ambitions, forming the heart of the industry drive towards Network Computers – simpler and cheaper devices than today's computers, but able to do the tasks most people do most of the time. NCs will use Java applets stored centrally on server computers, but will be able to work alongside the Macs and PCs now reserved for more demanding work.

Apple is fully involved with this new direction for using computers, developing a Java Virtual Machine for its hand-held devices like the MessagePad. Meanwhile, Bandai has plans for Java on Pippin, the Mac-based Net console that may be the most evolved prototype for the NC concept.

On the boil: new ideas through Java

CorelOffice for Java

Set to appear later this year, Corel's Java suite is designed for large businesses with huge networks of computers linked together. *CorelOffice's* selection of word processor, spreadsheet, address book and scheduler may make it seem traditional, but its radical use of Java enables you to send, receive and work with company files much more easily.

With *Office*, the distinctions between your computer and others in the firm will become invisible, with many files stored centrally for all to use. You'll be able to drag any document to *Office's* e-mail component to send it out automatically, and the address book is also closely integrated with the e-mail service.

Even the nature of the documents will change – like the Live Objects we've just been looking at, *CorelOffice* can embed charts within a report, for example. This can be linked with information from the Internet so the report is kept constantly updated.

You'll be able to use *CorelOffice* either as a stand-alone suite or within a Web browser.

CastaNet

Marimba's ingenious program uses all the distinctive advantages of Java to take away the pain of browsing the Net, while enabling you to use it more productively than ever before. *CastaNet* is an automated system for loading material from the Net onto your Mac's hard disk while you carry on with other work.

The free *CastaNet Tuner* displays hundreds of channels, divided into different areas of interest just like satellite TV stations. The difference here is that these channels contain software programs, not TV programmes;

The Weather Underground's *Blue Skies* Java suite links to satellite information to give you the latest weather information on demand.

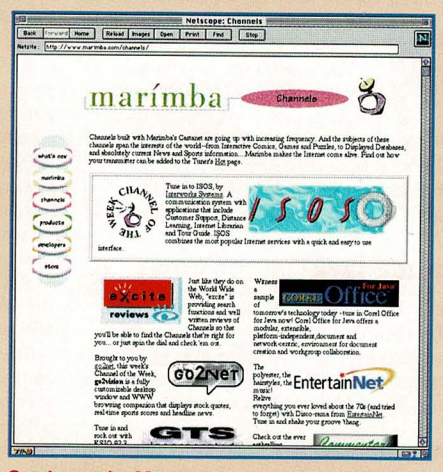
***CastaNet Tuner* regularly visits any channel you subscribe to and downloads any new files it finds.**

***CastaNet* would obviously be great for getting hold of Mac System software, for example – subscribe to an Apple channel, and your Mac would automatically update its System as new versions were released. Corel is planning such a channel for updating your copy of *Office for Java*, but there are plenty of other uses for *CastaNet*, though. You might join an interactive language course, taking weekly lessons in Spanish on your Mac, or keep your CD-ROM encyclopedia entries constantly up-to-date.**

Apple has signed a deal with Marimba to include the *CastaNet Tuner* with Java as part of the Mac OS, so expect to see it as part of the System later this year.

Blue Skies

Devised by the Weather Underground, a group based at the University of Michigan, *Blue Skies* uses Java to link up with hundreds of computers across the globe in order to pool their satellite weather images, then display them instantly over the Web.



Coming to the Mac soon (for free), Marimba's *CastaNet Tuner* will give you the chance to download software, receive news and more.

MetaMedia

Ontario's University of Waterloo has 26,000 students on campus, but also maintains a long-distance learning project of the sort countries as expansive as Canada practically demand. Now the University is using Java to create genuinely interactive coursework, with students able to alter the content of applets to test theories.

Brewing up Java

Formerly the province of experienced programmers, writing Java applets isn't restricted to experts any more. New programs on the Mac will enable you to stir up your own creations.

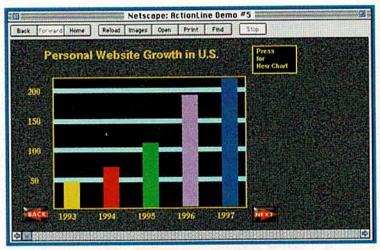
ActionLine

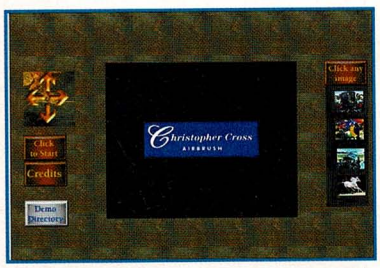
Like its Java-authoring rivals, Interactive Media Corporation's *ActionLine* enables you to create Java applets to place within HTML Web pages, generating all the program code you need automatically. IMC reckons it will only take you a couple of hours before you're viewing your first applet.

You'll use *ActionLine* to create slides containing text, images, video and animation. You can also set up buttons to respond to a mouse click, or even set up links to Web pages.

The program uses a system of "portals", interactive elements which display your material within a slide. Once you've arranged your portals within your slides, you can create ActionLinks – cause-and-effect connections between portals represented graphically on the screen as you set them up.

For more details on *ActionLine*, contact IMC in California on 00 1 415 948 0745, or see the firm's Web site at **http://www.imcinfo.com/**





Two sample *ActionLine* applets: an interactive chart (above) and a gallery (right).

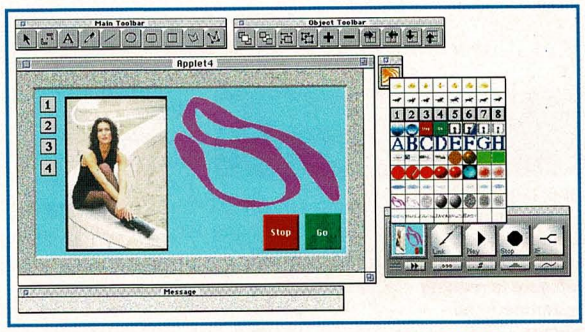
***ActionLine* uses simple tools to create sophisticated Java applets you can broadcast over the Web.**

WebBurst

PowerProduction Software's Java tool enables you to create animated Web pages with basic interactive elements, all without having to learn Java programming. The program converts your work into HTML, ready to place on your Web site.

With *WebBurst* you can place objects like text or graphics within a window, then assign properties to them. Properties have two parts – an action, like clicking your mouse on the object, and a reaction, such as playing a video, making a sound or linking to a Web page. Once they're made, you can keep objects you plan to use frequently in libraries, from where you can simply drag them into a page whenever you like.

WebBurst offers basic drawing and animation tools, but its main role is adding interactivity and compiling the finished production. You're given some simple tools to add text forms to your pages – *WebBurst* can understand basic logic terms such as **If** and **Then** commands, to give different reactions based on what you type in. If you're more familiar with Java, you can also integrate your *WebBurst* applets within a suite of applets you made elsewhere. Contact Gomark on 0171 731 7930 for more details.



The *WebBurst* Java kit offers libraries to store frequently-used elements and video-style controls for making them interact with each other.

Texture

FutureTense's *Texture* takes a desktop publishing approach to Web page design, offering control over layout and typography using its NetFonts system.

Texture's design features mean professional publishers can create Web pages that look as good as print publications. Then it employs Java to go completely berserk, giving you control over every aspect of complex Web sites.

You can use *Texture* to bring content like text and graphics from your Mac into a Web page automatically – you could link a Web page with your company database to produce a constantly updating on-line catalogue, for example. You can also build in interactive elements like forms and check boxes, which can then link back to your database to add new information like customer details and orders.

Coda

RandomNoise's ambitious package fights fire with fire – this Java authoring kit is itself written entirely in Java. *Coda* uses a combination of desktop publishing and multimedia authoring tools to enable you to create graphics and animation for your Web site.

Coda works in a similar way to its rivals: you're able to arrange elements like text and images on your page, then assign properties to each. These can include the way an element moves around the page as well as essentials like mouse-click reactions and Web links.

Coda's publishing features give you a healthy degree of control over text, with different fonts and styles at your disposal. Because *Coda* is written in Java, you can modify not only the applets you create, but also the program's components themselves. *Coda* will go on sale in the spring for $495. Contact RandomNoise on 00 1 888 438 2632 or see the Web site **http://www.randomnoise.com/**

What's in the next part?

As the king of component software, the Mac is set to welcome more systems to work alongside OpenDoc and Java, offering you the widest choice of parts of any computer user.

ActiveX

Microsoft's own component software is derived from the firm's Object Linking and Embedding system (OLE), which you may have come across if you're a regular user of *Microsoft Office*. OLE enables you to set up links between *Office's* constituent programs, such as *Word* and *Excel*, so you can place a spreadsheet or chart within your *Word* document, for example.

Active X moves beyond OLE by offering its own small objects, which Microsoft calls controls – you can place these within any document written with an ActiveX-aware program. ActiveX has been around for some time on *Windows*, but Microsoft is only just completing the Mac version. Like Java applets, ActiveX controls will operate within OpenDoc. The Java analogy is appropriate because ActiveX controls tend to be simpler and more compact than OpenDoc Live Objects. Unlike Java, though, ActiveX controls have to be written specially for each different type of computer they're meant to run on.

ActiveX's Java-like feel and its OpenDoc-like ability to work directly with other programs and systems on your Mac should make it a useful addition to the Mac's component range. The system is likely to lie dormant, though, until Microsoft's *Office 97* comes to the Mac later this year and gives programmers a reason to support ActiveX.

ActiveX controls include games, multimedia presentations and business tools.

WebObjects

Recently bought by Apple for its operating system technology, NeXT Software has also developed a powerful component package used by multinational companies to manage their Web sites. WebObjects will certainly appear for Rhapsody, Apple's forthcoming successor to the Mac OS, working alongside OpenDoc and Java as an integral part of the OS.

The WebObjects system is designed to go at the heart of a firm's computer setup. Even though various departments may have been assembled over many years from many different suppliers, WebObjects enables them all to work together. You can create customised programs or Java applets to place on your firm's central server, the resource for information and statistics.

According to how the program is designed, you can make server information accessible to employees or even customers through a Web page. One example is Seattle's CyberSlice Web pizza-ordering service (**http://www.cyberslice.com/**). Whenever you connect to request your slice, the WebObjects program traces your nearest pizza shop based on the address details you've entered. It then displays that precise shop's menu on the Web page, ready for you to order.

Look out for this logo on Web sites: it means some extremely powerful software is running underneath the surface.

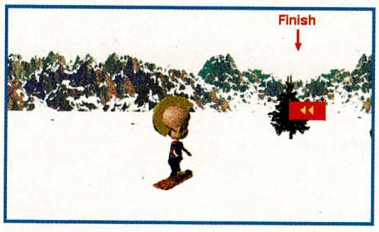
Using WebObjects, CyberSlice offers an on-line pizza service that uses a network of local shops to deliver in minutes.

Netscape plug-ins

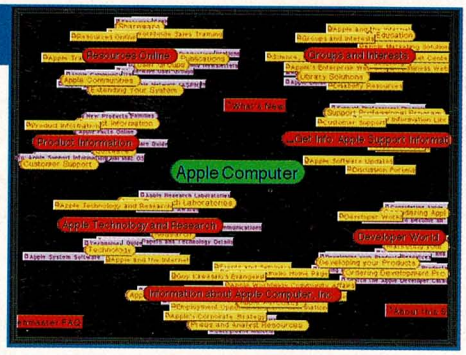
As the company behind the world's most-used Web browser, Netscape has led the move towards plug-ins – small programs you can clip onto *Netscape Navigator* or *Microsoft Internet Explorer* to add extra features. Apple is now working on an OpenDoc part called the *Cyberdog Internet Plug-in Viewer*, which will enable any OpenDoc-aware program to use the same plug-ins by embedding a *Cyberdog* Web page. The *Internet Plug-In Viewer* will provide an easy way to mix new formats appearing through the Web with your software on your Mac.

For example, you'll be able to use Adobe's *Acrobat Reader* plug-in to display Portable Document Format files within OpenDoc container programs like *ClarisWorks*. You could also place Macromedia's *Shockwave* multimedia productions within a document, or even use Apple's *HotSauce* plug-in to offer a 3D representation of a favourite Web site.

With the *Internet Plug-in Viewer* added to the might of OpenDoc and Java, the Mac will enable you to integrate the Net into your everyday work more than any other computer. Say, Apple – we don't suppose there's any chance of an OpenDoc part that could accept *Photoshop* plug-ins? Or how about one for Quark XTensions? Only time will decide what component software's limits will be! **MF**



You'll soon be able to show *Shockwave* productions like *Extreme Snowboarding* within any OpenDoc page.



Apple's *HotSauce* 3D Web navigator should work superbly as an extra aide for browsing the Web within OpenDoc.

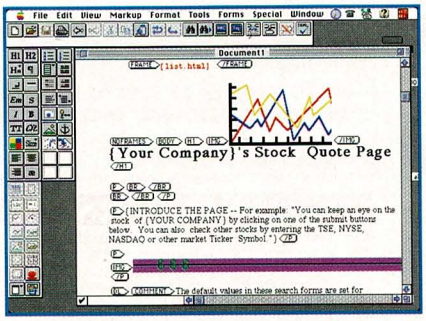
Win HoT stuff!

Three copies of *HoTMetaL Pro v3* are up for grabs, worth nearly £350, courtesy of SoftQuad.

The Internet is now firmly embedded into our lives – and you too could be a Web author, putting your own pages on the Web for business or pleasure! Now SoftQuad gives you the chance to win one of three copies of *HoTMetaL Pro v3*, a high performance graphical HTML editor. It scored 80% in MACFORMAT 47, so it's Well Worth Winning!

However daunting Web authoring might sound, *HoTMetaL Pro* will help you turn out stunning and professional pages. There are also several hundred Web templates included to get you started, along with 20Mb of clip-art, *Shockwave* and video files and audio clips.

To win, answer the simple question below, then send in your answer by mail or phone. The closing date is Friday 18 April 1997.



A few graphics, a bit of text, mix in a bit of *HoTMetaL Pro* and hey presto! Your own Web page!

The Question

Which of the following is *NOT* included with *HoTMetaL Pro v3?*

(a) Several hundred Web templates
(b) 20Mb of clip-art
(c) A 14-piece fondue set

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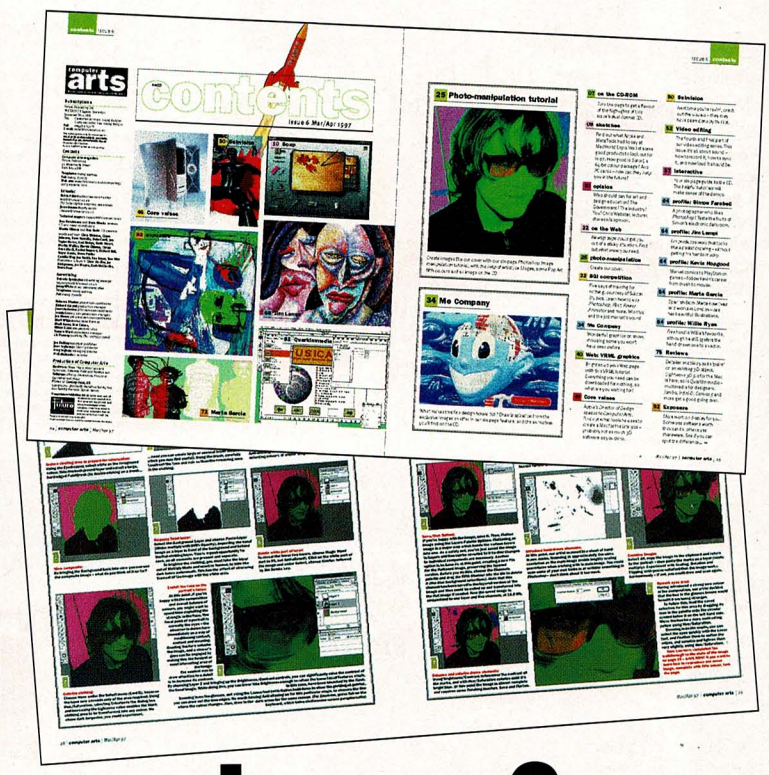

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DC20 £155 Limited Offer

DC50

DC50 £449

Specially designed so it's lightweight, easy to hold and carry, the DC50 is truly point-and-shoot. Active infrared sensors enable autofocusing, a 3x zoom lens lets you compose the scene for best effect; and has a close-up mode, whilst the built-in flash has a powerful 4.27m (14 feet) range which fires automatically when needed. However, camera controls let you take command - to override autoflash, adjust exposure, activate self-timer and delete pictures. Best of all, the DC50 uses a PCMCIA-ATA Type I or II card for image storage and easy picture transfer.

MEMORY

POWERMAC POWERMAC

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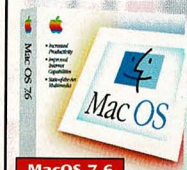
Mac OS 7.6



MacOS 7.6 £59

Mac OS 7.6 is the first release in Apple's new strategy of delivering state-of-the-art operating system functionality on a regular basis. This release unites many new Apple technologies with additional features and functionality, to offer pervasive Internet access, improved productivity, state-of-the-art multimedia and enhanced PC compatibility. Specifically, Mac OS 7.6 integrates the Internet more fully into your desktop and documents, provides new ways to work better and faster, enables the creation of more compelling multimedia documents and improves performance and ease of use in key areas such as installation, printing, networking and extensions management. Best of all, Mac OS 7.6 is designed to install easily and works with all System 7 based applications and files. It incorporates new features designed to improve the way you work including : Live Objects component software; enhanced support for PC files and media (including Windows 95); and advanced networking and printing functionality.

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WRD5	**Microsoft Word v6.0** (market leading WP)	£249.00
NSWR	**Nisus Writer v5.0** (multiple languages capability)	£99.00
THDR	**SpellCatcher** (spellchecker, works in all applications)	£45.00
WDP3	**WordPerfect v3.51** (trade-in from any other word processor)	£65.00

DATABASES

4DFR	**4D First** (powerful and fully relational starter database)	£95.00
ACTA	**ACT!** v2.5 (excellent contact management)	£149.00
CORG	**Claris Organiser v2** (full featured new database)	£65.00
FLMR	**FileMaker Pro v3.0** (now with relational features)	£139.00
INFG	**InfoGenie** (info organiser, supercedes QuickDex)	£45.00
NOWB	**Now Up-To-Date v3.6 & Now Contact v3.6 Bundle**	£49.00

BUSINESS

ASTD	**Astound v2.0** (powerful presentation package)	£159.00
CLWR	**ClarisWorks v4.0** (market leading integrated package)	£89.00
DLTG	**Deltagraph Pro v4.0** (best graph and chart program)	£99.00
EXCL	**Microsoft Excel v5.0** (market leader, great features)	£249.00
UGMSF	**Microsoft Office v4.2** (Word, Excel, PowerPoint) cross trade	£185.00
WRKS	**Microsoft Works v4.0** (WP, DB, Comms, Draw, SSheet)	£85.00
MCMY	**MacMoney v4.0 UK** (home accounts/budgeting package)	£65.00
MYOB	**MYOB v6.0** (integrated single user business accounts)	£145.00
PERS	**Persuasion v4.0** (high end presentations with outliner)	£195.00
PWPT	**PowerPoint v4.0** (powerful, intuitive, easy inteface)	£265.00
SINQ	**Route 66 CD ROM** (road routefinder, includes UK map)	£45.00

GRAPHICS

PHSPB	**Adobe Collection** v2 (Pshop 4, Illust. 6, Dimen. 2, ScrnReady)	£525.00
CNVS	**Canvas v5.0** (long awaited new version)	£345.00
CLDW	**ClarisDraw** (powerful, easy to use draw package)	£109.00
UGCRM	**CorelDraw v6.0** (trade in from any graphics package)	£99.00
ADIM	**Dimensions** (Adobe's 3D extension for Illustrator)	£99.00
DBLR	**Dabbler v2.0** (great beginners paint program)	£49.00
PSERM	**Fractal Design Poser v2.0** (create human figures)	£145.00
FRND	**Freehand v7.0** (professional PostScript drawing & text)	£299.00
MMSF	Freehand Graphics Studio v7.0 (Fhand 7, X3D, Fonto, X-Res)	£445.00
UGFNB	Freehand Graphics Studio v7.0 (upgrade from Freehand 5.5)	£159.00
INFD	**Infini-D v3.5** (leading 3D modelling & rendering tool)	£395.00
ILST	**Illustrator v6.0** (pro PostScript drawing, text & layout)	£295.00
KPTG	**KPT Power Goo (fun photo retouching program)**	£39.00
KPTK	**Kai's Power Tools v3.0** (amazing filters for Photoshop)	£89.00
KPTV	**KPT Vector Effects** (Illustrator/FreeHand FX Plug-Ins)	£89.00
KPTC	**KPT Convolver** (adds power and ease to Photoshop)	£89.00
KPTD	**KPT Bryce v2.0** (3D Skies and landscapes)	£129.00
MIMx	**Maps in Minutes** (wide range in Illustrator or FreeHand)	from £75.00
MCAD	**MiniCad v6.0** (native professional 3D design & analysis)	£495.00
RYDS	**Ray Dream Studio** (3D design, modelling, animation)	£199.00
PHOD	**PhotoDeluxe** (cut-down PhotoShop for non-professionals)	£79.00
PHSP	**PhotoShop v4.0**	£395.00
PNTR	**Painter v4.0** (the premiere painting program)	£245.00
TRBC	**TurboCAD 2D/3D** (budget but powerful CAD package)	£105.00

DESKTOP PUBLISHING

ACRBM	**Adobe Acrobat v3.0** (paperless publishing)	£155 .00
ATMC	**ATM Deluxe v4.0** (manages and smooths screen/printer fonts)	£49.00
CAIO	**Click Art** (25000 clip art images)	£25.00
CBGB	**Corel Gallery II** (15000 clip art images)	£49.00
FNTG	**Fontographer v4.1** (best professional font creator)	£299.00
PMKR	**PageMaker v6.5** (power and ease of use)	£399.00
QKXZ	**Quark Xpress v3.32**	£649.00
QKxx	**Quark Xtensions** (we carry a wide range)	please call
UNIQ	Uniqorn (create Java content easily)Massive Price reduction!!	£295.00

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ECS5	**Epson Stylus Colour 600** (brilliant quality colour inkjet)	£245.00
ECSH	**Epson Stylus XL A3** (A3 colour inkjet, non PostScript)	£895.00
HP34	**HP DeskJet 340** (portable colour inkjet)	£179.00
HP66	**HP DeskWriter 660c** (colour and mono in one)	£215.00
HP87	**HP DeskJet 870Cxi**(mac & pc)	£335.00
PWPR	**PowerPrint** (driver and cable for non-Apple printers)	£79.00
STYS	**StyleScript** (print PostScript to StyleWriters)	£79.00

MONITORS

S21X	**Radius PrecisionView 21**	£1295.00
SN15C	**Sony 15" 100sx MultiScan Monitor CPD**	£295.00
SN17B	**Sony 17" Trinitron Monitor CPD 17SF2 While stocks last!!!**	£465.00
DP17T	Mitsubishi DiamondPro 17" 67TXV	£445.00
DP17	Mitsubishi DiamondPro 17" 87TXM	£489.00
DP21	Mitsubishi DiamondPro 21" 91 TXM	£1075.00

SCANNING

AFSS	**Agfa SnapScan** (300 x600dpi, 24 bit colour)	£275.00
AFST	**Agfa StudioStar** (600 x1200dpi, 30 bit colou)	£645.00
COOL	**Nikon CoolScan II** (35mm slide scanner)	£745.00
UVSA	**Umax Vista S6** (600dpi)	£255.00
UMPLP	**Umax PowerLook II Pro WITH £300 TRADE IN OFFER !!!!**	£1295.00
OMPP	**OmniPage Pro 7.0** (OCR directly into applications)	£365.00
PPVX	**PaperPort VX** (greyscale desktop OCR and scanning)	£245.00

DIGITAL CAMERAS

FDSA	**Fuji DS7** (MacUser Best buy winner)	£459.00
KD25	**Kodak DC25 Digital Camera** (point & click, auto exposure)	£299.00
KD50	**Kodak DC50 Digital Camera** (autofocusing, 3 x zoom)	£449.00

COMMUNICATIONS

MROL	**Motorola 3400** (MacUser Best Buy 28.8 baud)	£89.00
SPR5	US Robotics Mac Voice/Fax/Modem 33.6	£155.00
TLPP	**TelePort Internet Edition** (33.6 modem from Global Village)	£125.00

NETWORKING

ANET	**LocalTalk (AppleTalk) connector kits**	£15.00
ASDBA	NetDoubler (increase network speed)	from £49.00
FTNP	**PhoneNet connector kits**	£12.00
FEHD	**EtherLan Hub 5** (5 port Ethernet 10baseT Hub)	£65.00
FAIR	**Farallon AirDock** (Infra Red LocalTalk connector)	£69.00
QKML	**QuickMail v3.6 10 User** (powerful, flexible E-Mail)	£349.00
ASPA	**AsantePrint** (Ethernet to AppleTalk printer router)	£249.00

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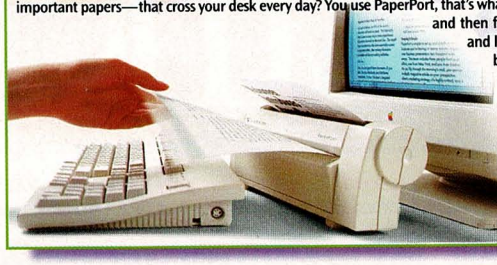

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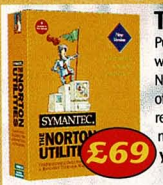

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Put these essential, award-winning tools to work for you and never fear data loss again! The Norton Utilities is the most powerful collection of tools ever developed for protecting and recovering your data. The award-winning technology recovers data where others can't and is **your best bet for 100% data recovery.**

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Try the brilliant Norton DiskDoubler Pro - and double the capacity of your existing hard disk, instantly and automatically. The award winning technology compresses files an average of 50 percent, and up to 99 percent. It's the **fastest, tightest, safest compression available.**

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The war against computer viruses is over, and you've won! Symantec AntiVirus for Macintosh automatically locks out viruses and repairs infected files. SAM is the highest-rated, best-selling Macintosh virus protection program in the world - the fastest and most unobtrusive. **Install SAM once and never worry again!**

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Suitcase is an essential tool for everyone who works with fonts. You can group fonts into sets for quick access; display them within applications using WYSIWYG font menus; and sample fonts in any size and style to take the guesswork out of selection. You can even link fonts to specific applications, so your fonts will automatically open when you need them.

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MDRT	**MacroMedia Director v5.0** (key multimedia tool)	£749.00
CLIW	Scitex ClickWorks (multimedia made easier)	£545.00
PRMR	**Premiere v4.2** (Adobe's brilliant QuickTime editor)	£399.00
VIDD	**Video Director v2.0** (edit your home videotapes)	£85.00
FLSH	NEW!! Macromedia Flash (create lightening fast web graphics)	£195.00

PC COMPATIBILITY

DSMT	**DOS Mounter 95** (read/write PC floppies) limited offer	£55.00
MLPT	**MacLink Pro** (best Mac/PC link with100's translators)	£105.00
SFWD	SoftWindows v3.0 (special offer - while stocks last)	£175.00
SFWE	SoftWindows 95 (special offer - while stocks last)	£199.00

INTERNET

4DFI	**4D First Internet Server** (fast, relational server)	£109.00
AINK	**Apple Internet Connection Kit** (available on CD ROM only)	£49.00
HMPG	Claris Home Page v2.0 NEW VERSION!!!!!	£79.00
BK5010	**Internet Starter Kit** (the best book)	£36.86
CLEM	**Emailer** (great mail program, supports many services)	£45.00
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INET	**Internet Access Kit** (Internet dial up, email, Web, FTP)	£25.00
NTSCB	**NetScape Navigator** (best browser, includes manuals)	£59.00
NUTW	**Now Web Publisher** (put diary/schedules on the net)	£95.00
PGML	PageMill v2 (the WYSIWYG way to create web pages)	£65.00
STML	**SiteMill v1** (eases maintenance of Web Sites)	£139.00
WBBY	**Web Buddy** (makes your surfing easier)	£39.00

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CCPx	**Carry Case** (Apple or third party)	from £19.00
PCNA	**Ethernet Card** (Farallon 10BaseT PCMCIA card)	£175.00
FEVC	**MV16** (16 bit colour/10BaseT Ethernet for 5300/190s)	£159.00
TPCM	**TDK Modem** (PCMCIA 28.8 fax modem)	£189.00

ACCESSORIES

	Cables, Toners and Ink Cartridges (for laser & inkjet printers)	call
KBCF	**Extended Keyboard** (15 function keys, numeric pad)	£35.00
QCKM	**QuickCam** (mono video camera for QuickTime)	£79.00
QCKL	**Colour QuickCam** (colour video camera for QuickTime)	£159.00
AGMJ	**JetStick** (joystick for the control you've always wanted)	£39.00
SESY	**Security Systems** (is your Mac vulnerable to theft?)	from £29.00
TMADD	**Thinking Mouse** (4 button with software)	£59.00
TMADC	**Turbo Mouse** (top selling trackball)	£75.00
WCU6D	**Wacom ArtPad II A6** (handy stylus and tablet, inc Dabbler)	£120.00
WCU5	**Wacom UltraPad A5** (stylus and tablet)	£249.00
WCU4	**Wacom UltraPad A4** (professional stylus and tablet)	£359.00
VR256	**256K VRAM Chips** (adds more colours)	£19.00
VR512	**512K VRAM Chips** (adds more colours)	£25.00
VR9A	**1Mb VRAM DIMM** (for 7200, 7500, 8500)	£35.00

PROGRAMMING

HYPC	**HyperCard v2.3.5** (new version, more power)	£89.00
CDWG	Metrowerks Code Warrior Gold v11 (PowerMac compiler)	£290.00
CDWJ	**Discover Programming with JAVA**	£65.00
FTBS	**FutureBasic II** (the best Basic for Mac, inc. PG Pro)	£179.00

UTILITIES

ATMC	**ATM Deluxe v4.0** (manages and anti aliases fonts)	£49.00
CPTV	**Captivate** (professional screen capture utility)	£52.00
INVU	**Conflict Catcher v3.0** (INIT manager and more)	£55.00
NDBP	**DiskDoubler Pro** (Disk,Auto and Copy Doubler)	£59.00
HDTK	**Hard Disk Toolkit** (the best formatter and checker)	£109.00
NUME	**Norton Utilities v3.2** (best selling utilities package)	£69.00
NOWU	**Now Utilities v6.5** (suite of essential utilities)	£59.00
POPF	**PopUpFolder** (view folder contents with submenus)	£29.00
QCKY	**QuicKeys v3.5** (macro maker, time saver utility)	£59.00
RAMD	RamDoubler v2 (actually doubles your available RAM!)	£45.00
SPED	**SpeedDoubler** v2 (greatly improves performance)	£45.00
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OPDT	**DeskTape Pro** (treats DAT as if it were a 2Gb drive)	£199.00
MPRA	**MacPrefect** (secures most aspects of the Finder)	£45.00
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RTSP	**Retrospect v3.0** (powerful archival backup)	from £119.00
SAM	SAM v4.5 (Symantec's anti virus utility) special offer	£49.00
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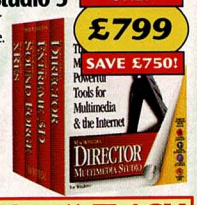

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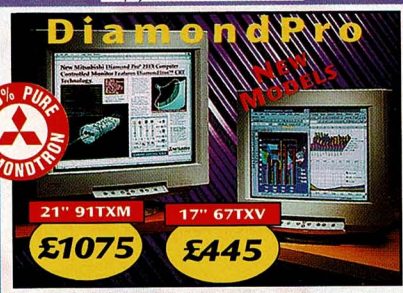

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With the advent of graphical operating systems and sophisticated software, applications have called for bigger monitor screens capable of supporting higher resolutions and providing a brighter picture, while maintaining excellent image integrity. Mitsubishi's response was to develop a new CRT type, the DIAMONDTRON, to meet the needs of demanding graphic applications. This CRT's aperture grille mask design permits a greater portion of the electron beams to pass through the structure, resulting in a brighter picture. Mitsubishi's unique NX-DBF (Dynamic Beam Forming) electron gun enhances and improves screen resolution, maintains beam focus from center to edge, and increases corner resolution up to 40 percent.

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	FROM 3 YEARS UPWARDS	inc VAT (ex VAT)
KDMH	**KidsMath** (takes kids from counting to arithmetic)	£34.08 (£29)
KDPX	**KidPix II** (wonderful paint program with sound effects)	£28.20 (£24
NMBM	**NumberMaze** (award winning arithmetic tutor)	£41.03 (£35)
RDMZ	**ReadingMaze** (letter recognition to sentences)	£41.03 (£35)
TYEN	**Typing Instructor** (good training from basics to touch)	£29.38 (£25)

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ARTT	**Arthur's Teacher Trouble** (interactive story book)	£28.20 (£24)
ARTB	**Arthur's Birthday** (more Arthur)	£28.20 (£24)
RWRCD	Creative Writer & Fine Artist on CD ROM	£41.12 (£35)
LJZCD	**Logical Journey of the Zoombinis** (rave reviewed)	£28.20 (£24)
HHHS	**Harry and the Haunted House** (the new best seller)	£28.20 (£24)
KDPCD	**KidPix Studio** (KidPix plus animation)	£28.20 (£24)
RUFF	**Ruff's Bone** (adventures with Ruff the dog)	£28.20 (£24)
HARECD	**Tortoise and the Hare** (the epic race)	£28.20 (£24)
	REFERENCE	inc VAT (ex VAT)
3DAT	**3D Atlas** (simply wonderful)	£45.83 (£39)
MAGCD	**Art Gallery** (Microsoft's tour of the National)	£34.08 (£29)
CINI	**Cinemania '97** (19000 movie reviews and more)	£28.20 (£24)
NCRT	**Encarta '97** (fantastic multimedia encyclopedia)	£39.35 (£34)
GRLCD	**Groliers Encylopaedia 97** (21 vols, 9 million words!)	£41.12 (£35)
OEDCD	**Oxford English Dictionary** (the whole thing)	£264.38 (£225)
REDCD	**Red Shift** (superb astronomy program)	£41.13 (£35)
UHBCD	**Ultimate Human Body** (Dorling Kindersly's one)	£29.38 (£25)

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	BEST SELLING GAMES ON CD	inc VAT (ex VAT)
MRTHCD	**Marathon 1 and 2 Bundle** (can you resist?)	£22.32 (£19)
WRGCD	**Warcraft II** (detailed graphics, haunting sound)	£37.61 (£32)
ACSOC	**Actua Soccer** (set to be number one for sure)	£31.72 (£27)
MJPCD	**Maj Jong Parlour** (classic oriental game)	£41.13 (£35)
ELACE	Electronic Arts Top 10 pack I	£34.07 (£29)
MYST	**MYST** (magical mystery adventure)	£37.61 (£32)
SIMCC	**Sim City 2000 Collection** (with extra goodies)	£41.13 (£35)
PRPCD	**Prince of Persia I & II** (two of the best ever)	£11.75 (£10)
IFDCD	**In the First Degree** (play a murder prosecutor)	£37.61 (£32)
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ERIC	**Eric's Ultimate Solitaire** (a dozen patience games)	£41.13 (£35)
A10A	**A10 Attack** (the best flight sim around)	£45.83 (£39)
F18H	**F/A18 Hornet** (from the creators of Hellcats)	£57.58 (£49)
BRDG	**Bridge** (not the Golden Gate but the card game)	£29.38 (£25)
FLSM	**Microsoft Flight Simulator** (realistic, accurate)	£41.13 (£35)

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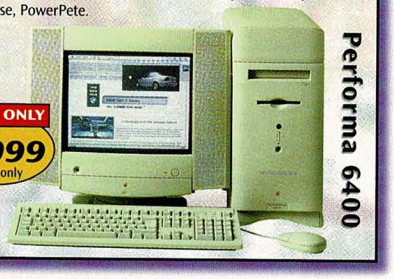
HARDWARE - PowerPC 603e running at 180 or 200MHz, 32k internal cache, integrated FPU, 64-bit memory bus, optional 256K level 2 cache, 16Mb RAM expandable to 136Mb, Internal 1.6 or 2.4Gb IDE Drive, 1.4Mb, 8x CD ROM, resolution up to 1024 by 768, 16 bit colour up to 800 by 600, optional 28.8Kbps built in modem software included, 16 bit sound, stereo speakers, microphone,, 2 x 7inch PCI slot, SCSI, 5.25 inch internal SCSI expansion bay.

SOFTWARE - Mac OS 7.5.3, Best of European Soccer, Apple Telecom 3.0, Ultimate Human Body, Apple Video Player, Aladdin Activity Centre, Lion King Story Book, Acrobat Reader, Toy Story Preview, At Ease, Grolier MultiMedia Encyclopaedia, ClarisWorks4.0, Claris Impact, Claris Organiser, Internet Connection Kit, MacLink Plus, Full Throttle, HyperCard Player, Descent, Performa Clickart, Thinkin' Things 3, Sammy's Science House, PowerPete.



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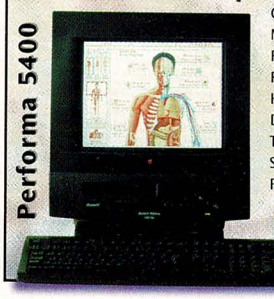
SOFTWARE - Mac OS 7.5.3, The Best of European Soccer, Apple Telecom 3.0, The Ultimate Human Body, Apple Video Player, Aladdin Activity Centre, 120 Letters, Lion King Story Book, Acrobat Reader, Toy Story Preview, At Ease, Grolier MultiMedia Encyclopaedia, ClarisWorks4.0, Internet Connection Kit, MacLink Plus, Performa Clickart, Full Throttle, HyperCard Player, Descent, Thinkin' Things 3, Sammy's Science House, PowerPete.



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HARDWARE - PowerPC 603e at 200MHz, 32k internal cache, FPU, 64-bit memory bus, 256K level 2 cache, 24Mb RAM up to 136Mb, Internal 2.4Gb IDE Drive, 1.4Mb, 8x CD ROM, resolution up to 1024 by 768, 16 bit colour up to 800 by 600, 28.8Kbps built in modem software included, 16 bit sound, stereo speakers, microphone, 2 x 7inch PCI slot, SCSI, 5.25 inch internal SCSI expansion bay.

SOFTWARE - Mac OS 7.5.3, Avid Cinema, Adobe Photodeluxe, PowerGoo, Cubasis AV, Adobe PageMill, Dabbler, Best of European Soccer, Apple Telecom 3.0, Apple Video Player, Acrobat Reader, At Ease, Grolier MultiMedia Encyclopaedia, ClarisWorks4.0, Claris Impact, Claris Organiser, Internet Connection Kit, MacLink Plus, HyperCard Player, Performa Clickart plus 8 best selling leisure and education titles.

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- Accelerated graphics card
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- 512K level 2 cache
- 1.2GB SCSI hard disk
- 12-speed CD-ROM
- Six PCI expansion slots
- Ethernet
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- 2MB of VRAM, expandable to 4MB
- Support for display resolutions of up to 1,280 by 1,024 pixels
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- 256k level 2 cache
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- Provides built-in Ethernet and modem (most configurations)
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- Expansion bay accepts CD ROM, Magneto Optical or Hard Drives
- Expansion slot accepts PC Cards for Ethernet and/or Modem as well as Video. Supports two type II or one type III card
- Ports: Serial, SCSI, ADB, audio
- Features 16 bit stereo sound input output ports and integrated microphone
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6320 12/1.2Gb/CD

Based around a Power PC 603e chip running at 120MHz, the 6320 supports a 14" or 15" multiscan monitor and has a built-in quad speed CD ROM drive. It has 12Mb of RAM as standard, 256k Cache, and includes completely free ClarisWorks version 3.0 and massive software bundle.

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SiliconGraphics Computer Systems O2

O2 Photoshop Workstation

Adobe Systems has worked closely with long-time partner Silicon Graphics to develop a high-performance set of Photoshop plug-ins that utilise the new O2 desktop workstation's special image processing hardware to accelerate many Photoshop functions. Known as the Adobe Photoshop Performance Package, the plug-ins use the Silicon Graphics O2 image processing hardware to help perform the required operations many times faster than the main CPU -including rotating, resizing, blurring, sharpening, and colour space conversion. Which means the performance of accelerated operations of Adobe Photoshop on Silicon Graphics workstations is two to three times faster than on the currently available Apple PowerMac 9500, tested with the Adaptive Solutions Powershop accelerator card installed.

- O2 Workstation,
- 180 Mhz R5000PC
- 128MB Memory
- 2GB System Disk
- 17" Monitor
- Photoshop
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The O2 desktop workstation is the innovative system that combines Silicon Graphics performance with the power of a Web-integrated user environment. O2 gives you the industry-leading CPU and graphics performance you need plus breakthrough video and imaging features you never expected to have, especially at such an affordable price. With this combination of performance and outstanding Web capabilities, you'll accomplish more on the desktop than you ever imagined possible.

The O2 comes standard with stunning 3D graphics, powerful image processing, and real-time video processing far beyond any other machine available in its class. These features make O2 the ideal workstation for Digital Imaging, Multimedia, post-production, Web site creation, and games development. Standard compression hardware and software transforms any user into a video editor, while providing the quality that video professionals demand.

O2 is the first system to provide bundled professional digital media capabilities and Web authoring tools. With the Web integrated throughout the interface, users communicate their work easier than ever before on company intranets and the Internet.

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The PowerMacintosh 9600/200MP computer is a multiprocessor system with two 200MHz PowerPC 604e chips which provide powerful performance improvements for applications that take advantage of its multiprocessing capabilities. The top of the line in speed, performance, expandability and upgradeability, which is tremendous news for publishers - particularly those working with advanced colour - as well as multimedia professionals and engineers.

- 2 PowerPC 604e processors at 200 MHz
- Integrated FPU, 64K cache
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- 16MB of RAM, expandable to 512MB
- 512K level 2 cache
- 1.2GB SCSI hard disk
- 12-speed CD-ROM
- Six PCI expansion slots
- Ethernet
- Composite and S-video video input and output
- Support for Speech Recognition and text-to-speech capabilities
- 2MB of VRAM, expandable to 4MB

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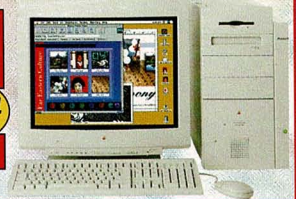

8600/200 16/1.2Gb/CD/Zip

If your profession demands a high-performance, expandable computer that's optimised to make work easy, choose the Power Macintosh 8600/200 system. This high-performance computer includes built-in video-in and video-out capabilities in an innovative new design. It includes features that make it an ideal choice for in-house publishing, media authoring, and technical applications

- PowerPC 604e at 200MHz
- Integrated FPU and 64K cache
- 16MB of RAM, expandable to 256MB via 4 DIMM sockets
- 256K cache
- 1.2GB SCSI hard disk
- 12-speed CD-ROM
- Internal Zip drive
- Three PCI expansion slots
- Ethernet
- Stereo audio input and output support 16-bit audio and up to 44.1-kHz sampling rate
- 1MB of VRAM, expandable to 4MB
- Support for display resolutions of up to 1,280 by 1,024 pixels
- 24-bit color up to 1024x768 pixel resolution
- Refresh rate of up to 75 Hz

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UMAX

All prices exclude the monitor

Apus 3000/200

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- 16Mb expandable to 144Mb
- 1Mb VRAM-on 3D video card
- 256K Level 2 cache,
- No on-board ethernet
- 1.2Gb IDE Drive
- 8 * CD ROM drive
- Keyboard & mouse
- 3 PCI slots
- Upgradable CPU socket

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- Power PC 603e at 160 MHz
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- 1Mb VRAM-built in video
- 256K Level 2 cache,
- No on-board ethernet
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- 8 x CD ROM drive
- Keyboard & mouse
- 2 PCI slots
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- 256K Level 2 cache
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- 2.5Gb SCSI Drive
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- Mouse and keyboard
- Optional Ethernet
- 5 PCI slots, 5 drive bays
- 16 bit stereo
- Five year limited warranty

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100% Mac OS compatible!

All prices exclude the monitor but include a keyboard

3000/180 **£869**

StarMax 3000/180

- Power PC 603e at 180Mhz
- 16Mb up to 160Mb
- 256K Level 2 cache
- 1Mb VRAM
- SVGA monitor port
- 1.2Gb SCSI Drive
- 8 x CD ROM drive
- Mouse and keyboard

StarMax 4000/160 or 200

- Power PC 604e at 160 or 200Mhz
- 16Mb expandable to 160Mb
- 256K Level 2 cache
- 2Mb EDO DRAM up to 4Mb
- SVGA monitor port
- 1.2Gb SCSI Drive
- 8 x CD ROM drive
- Mouse and keyboard
- Optional Ethernet
- 3 PCI slots
- 16 bit stereo
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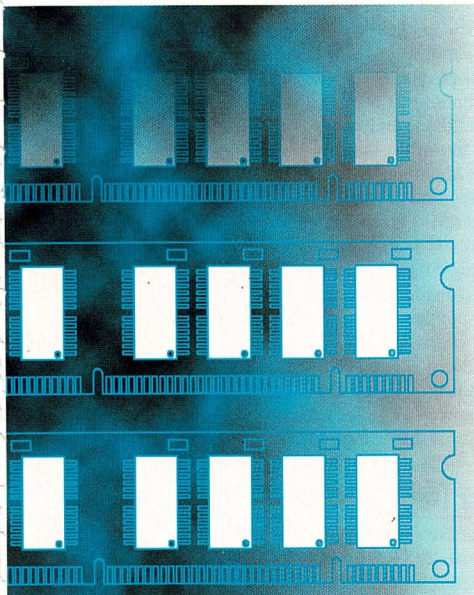
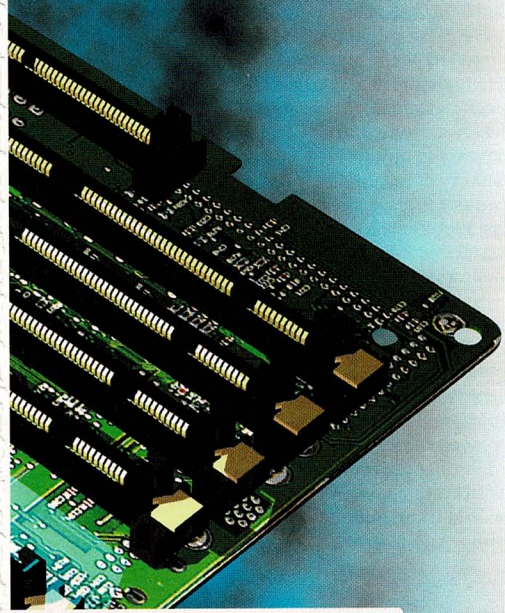
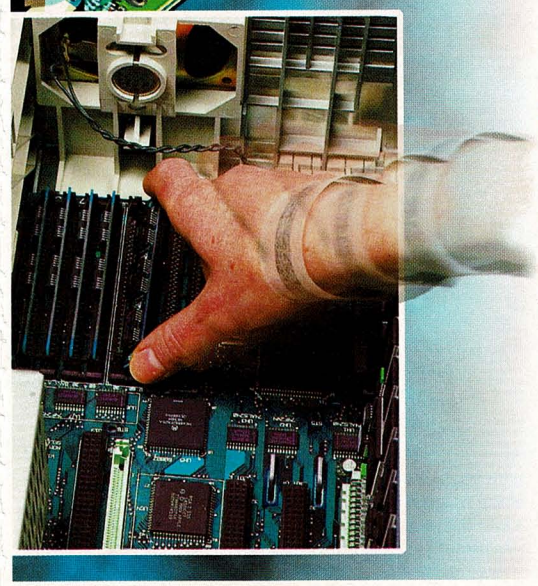






RAM for improvement

It's not just the power of your Mac's processor that counts, but how much RAM it has, and how you manage it. Lindsay Bruce explains how it works, how to get the best from it, and how to add more.

The very first Macintosh – the 128 – came with 128K of RAM (Random Access Memory). Even though the Mac's new and sophisticated operating system gobbled computer power and memory, this was still considered a huge amount at the time. Oh, how we look back and laugh! These days, 128K won't even let you run *SimpleText*, the Mac's basic word processor (it requires 192K minimum, preferably 512K). Indeed, 13 years on, all new Macs and Mac clones come with at least 16Mb of RAM – ironically, 128 times the capacity of the first Mac.

But it doesn't end there. The Mac 128 was not designed to be upgraded, but today's Macs are, and some can be fitted with up to 1Gb of RAM. Indeed, every Mac made since the Plus, back in 1986, can have its memory expanded.

However, in the fast-paced computer industry things tend to be superseded rather quickly, and you'll find that not all memory upgrades are the same. Over these seven pages we'll look at why your Mac needs memory, how it deals with it, what you need to expand it, and how to do it yourself.

Room to move

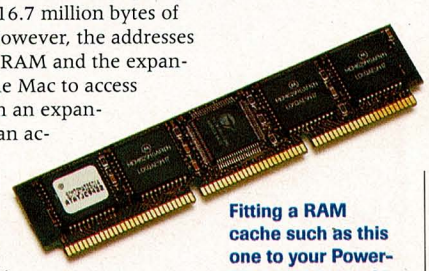
The Mac, like any other computer, needs a workspace – an area to lay out its tools and run projects. The tools are the Mac's software and the projects are your documents and applications. This workspace is the computer's memory, known as RAM (Random Access Memory). It needs this memory for three main things: the instructions that form the Mac's friendly operating system; similar instructions that form the applications you run; and the documents you create, edit, and output using your Mac. All of these need RAM, and how much RAM they need depends on the type of work you do and the applications you run.

Computer memory (and the storage space on hard disks, floppies and so on) is measured in bytes. One byte can store one alphanumeric character. One kilobyte (1K – 1,024 bytes) is enough to store about half a page of text, and one megabyte (1Mb – 1,024K) is enough to store an average-sized novel. One gigabyte (1Gb – 1,024Mb) is enough to store a fair-sized library. Memory is most commonly measured in megabytes, although cache memory (more about this later) is most often measured in kilobytes.

How does memory work? Tiny electrical charges are stored within a vast array of transistors (an electronic component that resembles a switch) etched onto a tiny sliver of silicon. One transistor holds one "bit" of data, either a "0" or a "1" – if a transistor holds an electrical charge, the bit is deemed to be a "1". Eight bits make one byte, so eight transistors co-operate to hold one byte (one character) of data.

Because the electrical charges involved are very small, though, they tend to leak away after a short period of time. To avoid data being corrupted or lost as a result, the charges are refreshed frequently from the Mac's motherboard.

In RAM, each group of eight transistors (one byte) is assigned an "address" to differentiate it from the millions of other bytes. This address is what your Mac uses to find specific information – it's rather like the postcode in your postal address. In older Macs like the Classic, the address code was 24 bits – or three bytes – long. This enabled the computer to "map" a total of 16.7 million bytes of memory – 16Mb. However, the addresses were split between RAM and the expansion bus to allow the Mac to access memory or chips on an expansion board such as an accelerator card. This meant that in practice the Mac couldn't map any more than 8Mb of physical RAM. 32-bit addressing (using 32 bits – four bytes – for memory addresses) came later and increased the amount of memory that ➤



Fitting a RAM cache such as this one to your Power-Mac could speed it up by as much as 25%. Want to know more? Read on...

ON THE CD

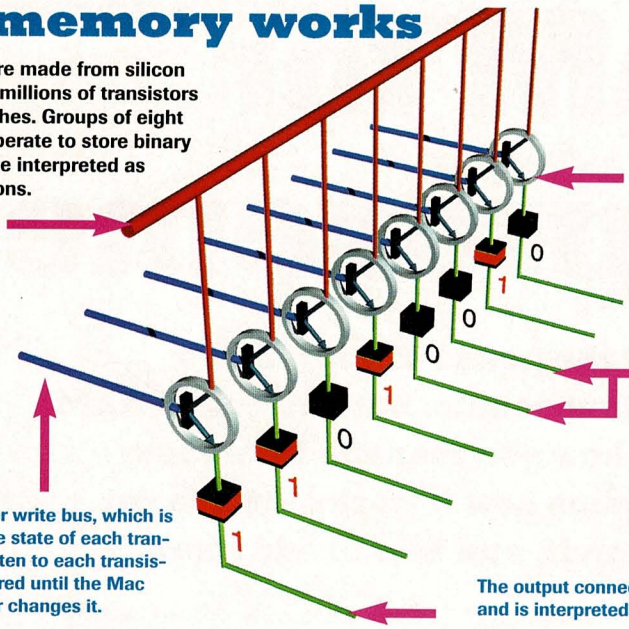
A collection of invaluable utilities in the **How To's** folder.

Where to go

Looking to buy some more RAM or other memory upgrade products for your Mac? A good first port of call can be a specialist dealer, like Performance Direct (01784 477477), Kingston Technology (0500 505077) or Mr Memory (01483 727333). And see page 146 for the chance to win £250 of memory upgrade products from Performance Direct.

How memory works

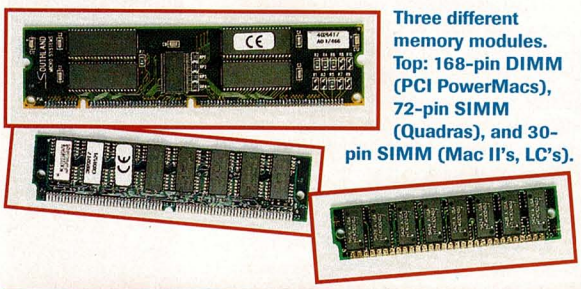
Memory chips are made from silicon slivers that hold millions of transistors that act as switches. Groups of eight transistors co-operate to store binary codes that can be interpreted as data or instructions.


Power connection: this supplies power to the transistor array and provides the voltage needed to trigger a binary "1".
The transistor is a simple switch. When a voltage is applied to its base, it changes state to the "on" position. This enables the power to flow through the transistor to the output side of the circuit.
If a voltage is present on this side of the transistor, the output is deemed a binary "1" – if no voltage is present, it's interpreted as a binary "0".
This is the input, or write bus, which is used to control the state of each transistor. Data is written to each transistor in turn and stored until the Mac loses the power or changes it.
The output connects to the "read bus" and is interpreted as data by the Mac.
1
0
1
0
0
1
0
1
1

could be mapped to a gigantic 4Gb. At present, no Mac can physically support this amount of memory. But if you can find a disk big enough you can achieve this using virtual memory – see page 55.

Types of memory

Your Mac contains more than one type of memory, but the memory that provides the workspace for the System software, applications and open documents is the RAM. This is made up of lots of tiny DRAM (Dynamic RAM – "dee-RAM") chips either soldered to the Mac's motherboard or mounted on a plug-in circuit board known as a memory module.



Three different memory modules. Top: 168-pin DIMM (PCI PowerMacs), 72-pin SIMM (Quadras), and 30-pin SIMM (Mac II's, LC's).

The size of the circuit board depends on which Mac you are using – the ever-increasing demand for memory has led to ever-larger memory chips and boards.

Single In-line Memory Modules (SIMMs) were used in all Macs until 1995, when the PowerMac 9500 was released. This model uses Dual In-line Memory Modules (DIMMs), which enable it to access twice as much data in one go as previous Macs. In fact there are three main types of memory modules: 30-pin SIMMs (used in the Plus, Classic and Mac II's), 72-pin SIMMs (most Quadras, first-generation PowerMacs), and the 168-pin DIMMs used in the PCI PowerMacs and PCI Performas. To find out which type of module your Mac takes, consult *Guru 2.2* on the Cover CD.

In addition to RAM, your Mac uses another type of memory called VRAM (Video RAM – "vee-RAM"). This is used to build screen images before they are sent to your monitor – the more VRAM your Mac has, the more colours it can display and at higher resolutions.

PRAM (Parameter RAM or "pee-RAM") is a small battery-powered area of memory used to store some start-up settings, including the date and time. PRAM is not expandable and doesn't need to be, so you can safely forget about it.

Finally, if you have a PowerMac or certain 68K-based Macs (a IIvx or IIci), you can fit a "Level 2 cache card" (for details of this, see page 58).

How Macs handle memory

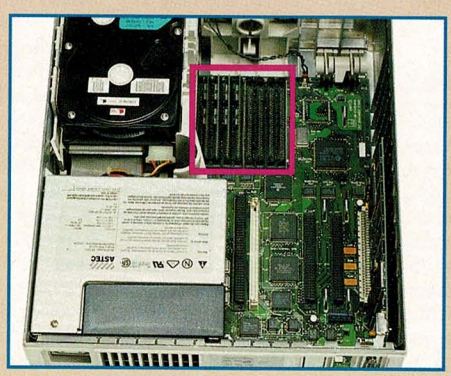
In the **Get Info** box in the Finder, you can specify upper and lower limits for an application's memory allocation. The **Minimum size** field is the minimum amount of memory you want to allocate to the application, and the **Preferred size** field is the maximum. A third field above these contains a **Suggested size** offered by the software manufacturer. Wherever possible, your Mac will set the program's memory allocation to the **Preferred size**. If there isn't enough free memory to do so, it will give it as much memory as it can. If there isn't enough memory to meet even the **Minimum size** requirement, your Mac will tell you so and ask you to quit any open applications to free some RAM.

Giving an application more memory enables you to open larger or more documents, or process them faster. For applications such as *Photoshop* this is highly desirable, because the program's performance is radically improved when it's given more RAM.

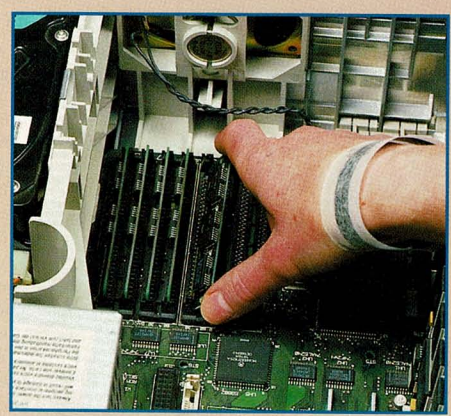
Like any other software on your Mac, the operating system requires memory too, but it can automatically resize its memory requirements on the fly. If the

Fitting more RAM to the Mac IIci

1 Before starting, make sure that you are wearing an anti-static wrist strap. (The static charges that build up on your clothes and body can easily destroy delicate chips.) Make sure you disconnect the cables from the back of the Mac. Unscrew the retaining screw on the back of the Mac and snap the two catches upwards.

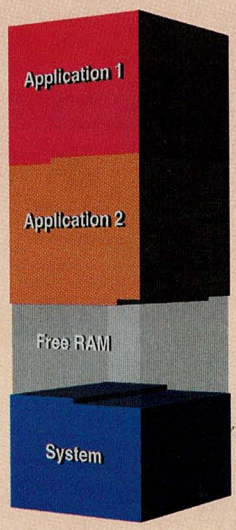


2 Inside the IIci: The memory slots (highlighted) are to the front of the machine, next to the hard drive. SIMMs must be installed in two groups of four in the IIci. Here, we're going to fit four 4Mb SIMMs alongside the existing four 1Mb SIMMs to give a total of 20Mb of RAM.



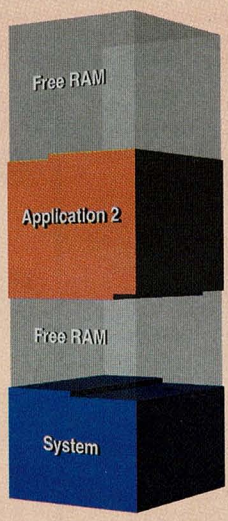
3 With the indent on the SIMM facing the back of the machine, insert the SIMM at a 30° angle into the slot. Make sure that it's fitted snugly and you haven't snagged any of the socket's pins.

Memory fragmentation – how does it happen?

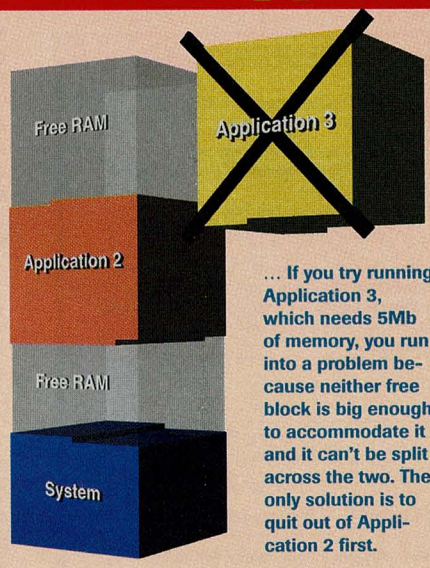


Here we have an illustration of a Mac's memory. The lower part is used by the System software, the upper part used by two running applications, and in between is the free RAM available for use.

Say you have 16Mb of RAM, the System is using 4Mb and both applications use 4.5Mb. This leaves you with 3Mb free for use...



... If you then quit out of Application 1, its code is removed from memory and the space assigned as being available for use. In theory, you should now have your original 3Mb block of free memory, plus the 4.5Mb that was being used by Application 1 – so you should have 7.5Mb of free memory. But Application 2 is still using the memory in between, which leaves you with two separate free memory blocks...



... If you try running Application 3, which needs 5Mb of memory, you run into a problem because neither free block is big enough to accommodate it and it can't be split across the two. The only solution is to quit out of Application 2 first.

System needs more RAM, it just grabs it without asking you. This makes things less tiresome for the user because you don't need to set up memory requirements for every System Extension you install on your Mac.

The portion of memory used by the System is called the "System heap", and it contains all the software your Mac needs to operate. However, in some cases, extra chunks of code can be loaded when needed. This is true of Extensions like QuickTime and QuickDraw 3D – when required, your Mac loads these into memory.

The drawback to this way of working is that occasionally the operating system makes a mistake and tries to grab a piece of memory that belongs to something else. When this happens, you get an instant and "fatal" error – a bomb. It's also possible that your Mac will run out of RAM before all the code it needs is loaded into memory. If this happens, whatever function you were trying to perform will fail and you will be asked to free up some more memory, either by quitting open applications or disabling some Extensions.

Fragmentation bombs

Just like your hard disk, your RAM can suffer from "fragmentation". Let's say you open two applications, one after the other. The first is loaded into memory at the opposite end from the System heap, the second goes immediately next door. Let's say that both applications require 4Mb of RAM and you had 12Mb free before you started – there's still 4Mb free. If you quit the first application, you will have 8Mb free – but you will find that this free memory is now in two blocks – one 4Mb chunk either side of the remaining application. The Mac can't split program code over two memory blocks, so if you now try running a third program, it will try fitting it into the larger of the two blocks. If it isn't big enough, you'll get a warning saying there isn't enough memory.

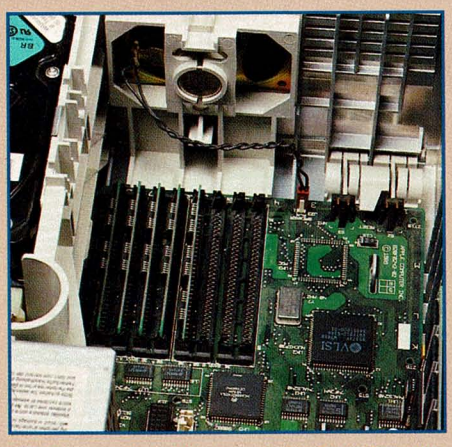
The only solution is to quit the open program and then re-launch it so that it isn't sitting right in the middle of the free block of memory.

Virtual memory

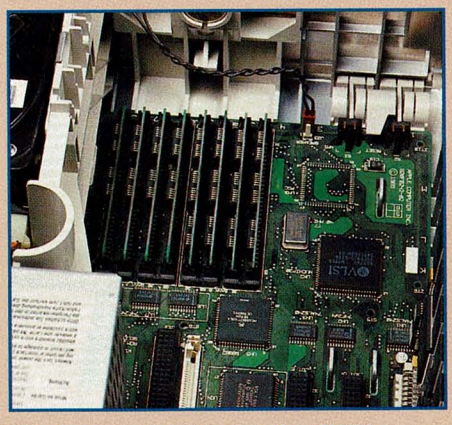
The price of RAM has dropped greatly over the last two years, but it's still an expensive commodity. For this reason, Apple came up with a cunning alternative: virtual memory. This involves using a portion of hard disk space as a kind of pseudo-RAM. You can't run a program directly from the hard drive, but any programs you have running in the background can be swapped out of ➤

Which?

Does your Mac need a DIMM or a SIMM? 72-pin or 30-pin? The golden rule when you're buying memory is always tell the dealer exactly what model of Mac you have. For full details on the memory of every Mac model ever, see *Guru 2.2* on the Cover CD.



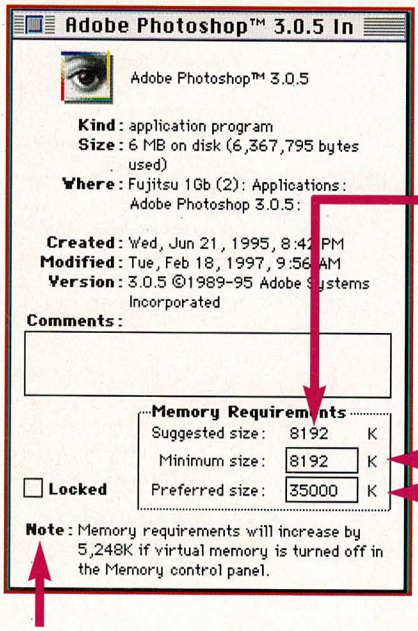
4 Then gently but firmly push the SIMM upright in the socket. Two retainer clips on the socket should snap into place and hold the SIMM tightly.



5 Repeat this for each of the four SIMMs. Note that they must all be of the same size and speed. Make sure that they are all secure and then replace the lid of the Mac.

6 Reconnect all of the cables and start the Mac up. Check in the **About this Macintosh** box how much memory you now have. If it hasn't changed, or your Mac won't start up, the SIMMs aren't seated properly and you should go back and do it again. Note that if you install more than 8Mb of RAM, you'll need to turn on 32-bit addressing.

Memory-minded – how to get the settings right


Adobe Photoshop™ 3.0.5 In
Adobe Photoshop™ 3.0.5
Kind: application program
Size: 6 MB on disk (6,367,795 bytes used)
Where: Fujitsu 1Gb (2): Applications: Adobe Photoshop 3.0.5:
Created: Wed, Jun 21, 1995, 8:42 PM
Modified: Tue, Feb 18, 1997, 9:56 AM
Version: 3.0.5 ©1989-95 Adobe Systems Incorporated
Comments:
Memory Requirements
Suggested size: 8192 K
Minimum size: 8192 K
Preferred size: 35000 K
Locked
Note: Memory requirements will increase by 5,248K if virtual memory is turned off in the Memory control panel.

Suggested size – this is set by the software manufacturer. If you don't allocate at least this amount to the application, you'll receive a warning.

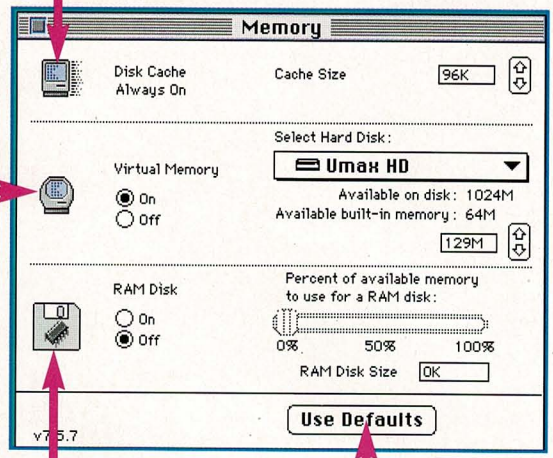
Minimum size – the smallest amount of RAM you want the program to use. If it's not available, the program won't launch.

Preferred size – the maximum amount of memory you want the program to use. The Mac will give it as much memory as it can up to this limit.

If you turn on Virtual Memory (or use *RAM Doubler*) on a PowerMac, the amount of RAM needed by PowerMac-native applications *reduces*.

Disk cache – this stores data that is frequently read from the disk. The larger you set it, the faster your Mac will retrieve data, although it's a law of diminishing returns. If you are running System 6, you can turn the disk cache off, but not in System 7 and above – its minimum is 32K. Ideally, you should set this to 128K or so.

The Virtual Memory option enables you to use a portion of hard disk space as memory. On PowerMacs, it's very efficient and Apple recommends you turn it on – the pop-up menu enables you to select which disk to use. You can set the amount of Virtual Memory to almost anything, as long as it does not exceed your hard disk's capacity.



The RAM Disk option enables you to use RAM as a virtual disk which mounts on the Desktop – the advantage is that it's extremely fast. Using the slider bar on the right enables you to select how much RAM you want to use for a disk.

The Defaults button reverts to the factory settings – disk cache of 96K, Virtual Memory on (on PowerMacs), and RAM Disk off.

real RAM and onto the hard drive while they're not being used. When you switch back to one of these programs, the Mac quickly reads all the necessary data from the hard drive.

And now the bad news

Virtual memory is a brilliant solution, but it has some limitations. First of all, your hard disk is somewhere in the region of 20 to 30 times slower than real RAM, so switching virtual memory on slows your Mac down rather drastically. Secondly, you shouldn't use more virtual memory than you have real RAM, otherwise things get extremely slow indeed.

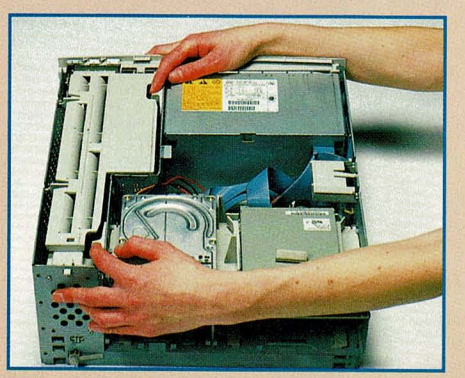
Thirdly, you shouldn't give all your new "free" memory to one program – it'll run incredibly slowly because your Mac will constantly be swapping data from the hard drive to RAM and back. For these reasons, using virtual memory was always a last resort when combatting memory shortages.

But this changed with the advent of the PowerMac. The PowerMac's form of virtual memory can actually improve the machine's performance. PowerMac programs require a lot of memory because they have a "reduced instruction set". (It takes more instructions to complete any given task, and hence the program requires more memory.) Switching on a PowerMac's virtual memory, though, drastically reduces the amount of memory programs require because the Mac now only loads the code it needs most. This is true both for applications and the operating system. Turning virtual memory on – even by just one megabyte – saves you several megabytes of real RAM. It still slows your Mac down, but it's a lot faster than the virtual memory on 68K Macs. The chances are you'll only notice any slowdown when you try switching between programs.

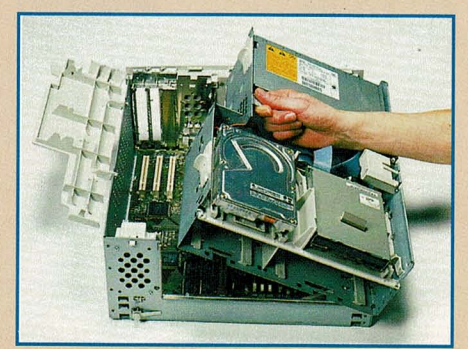
Using memory effectively is the key to getting more from your Mac. First, if you own a PowerMac you should preferably have virtual memory switched on –

Fitting more RAM to the PowerMac 7200

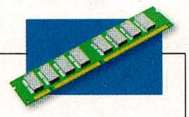
1 Compared to the IIci, fitting RAM to a PowerMac is easy. Disconnect the cables from the back of the Mac and make sure you have plenty of space to work in. Snap in the two catches on the front underside of the Mac and slide the upper half of the casing forwards.



2 The guts of the PowerMac 7200 swing out cantilever-style, making fitting RAM and upgrades a piece of cake. First snap the two retainer clips in towards the centre of the Mac, then hinge out the plastic slot cover on the left.



3 Using the metal lug in the centre, lift and swing out the cantilever with the disk drives and power supply. The motherboard, complete with expansion and memory slots, is completely exposed below.



Apple recommends it, and we agree. In fact, all PowerMacs ship with virtual memory switched on already. You can check this – and change the setting if necessary – using the **Memory** Control Panel. You can also choose which disk to use to store the virtual memory (if you have more than one connected to your Mac) and how much disk space to allow. You'll need to have free the amount of real RAM in your Mac *plus* the amount of additional virtual memory you want. For example, if you have 16Mb of RAM and set virtual memory to add a further 1Mb, you'll need 17Mb of free disk space for the Mac to use as the "swap space". We'd recommend setting virtual memory to no more than one or two megabytes more than the physical RAM your Mac has, and use the largest hard drive connected to your Mac (larger hard drives tend to be faster).

There are a few cases where using virtual memory is not desirable, though. Most games want your Mac to run as fast as possible, and having virtual memory on can cause "frame dropout" or freezes in animation while your Mac is busy spooling data from the hard disk. Adobe *Photoshop*, meanwhile, is one program which uses a virtual memory system of its own which can conflict with virtual memory. Imagine the amount of disk thrashing that goes on when you have both the System and *Photoshop* using your hard disk for swap space! It slows your Mac down and seriously shortens the hard drive's lifespan.

Caches and RAM disks

Having lots of free RAM is a good thing, but so is giving some of it away – no, seriously. At the top of the **Memory** Control Panel is an option to allocate some of your Mac's main memory to the "disk cache" (not to be confused with RAM cache or Level 2 cache – see page 58). This is an area of memory that stores frequently-read data from disk. Once the data is read from the disk, it's kept in the disk cache. If your Mac needs this information again, it can get it from the much faster disk cache instead of having to retrieve it from the drive again.

Generally speaking, the more RAM you give over to the disk cache, the better your Mac will perform. In practice, though, the law of diminishing returns applies, and you'll have to weigh the slight speed increase against losing a portion of precious RAM that could be used by applications.

The optimum setting for most Macs is fairly low – about 128K – but if you use programs like *Photoshop*, which access the hard disk a lot, then you should set it higher – about 1Mb. Any higher than this, and you're exchanging minimal speed increases for a fall in usable RAM.

A much underrated feature introduced with System 7 is the option to create a RAM disk. This is virtual memory in reverse, where you create a "virtual disk" from a portion of your Mac's RAM. The disk appears on your Desktop like any other volume and you can copy files and folders to it. But because it's made of RAM, the disk is extremely fast. You can even use it as a startup disk. When your Mac restarts, power to the memory ➤

The Mac OS and Shared Libraries

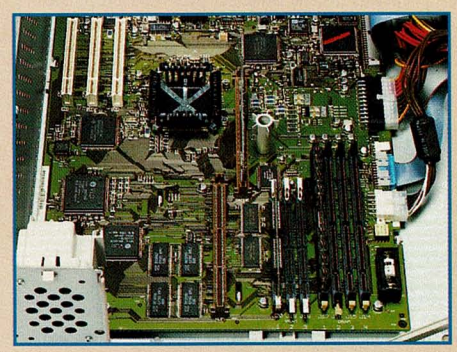
The Mac's operating system has become something of a leviathan. Apple specifies a minimum of 8Mb of RAM for the latest version, System 7.6, but recommends no less than 16Mb. Previously, Apple's recommendations were treated with a pinch of salt because they were nearly always on the generous side. However, on a networked PowerMac, such as those MACFORMAT runs in the office, 8Mb is barely sufficient to get the thing to start up, let alone run any applications. To be fair, if you have a more modest setup, the operating system will only use around 4Mb of memory – most of the time, anyway.

Part of the problem is the System's increasing use of "shared libraries". These are a type of Extension that's loaded only when a program needs it. The memory these shared libraries take up forms part of the System heap – the chunk of RAM used by the operating system. When not in use, they can be dumped to make room for more applications or documents.

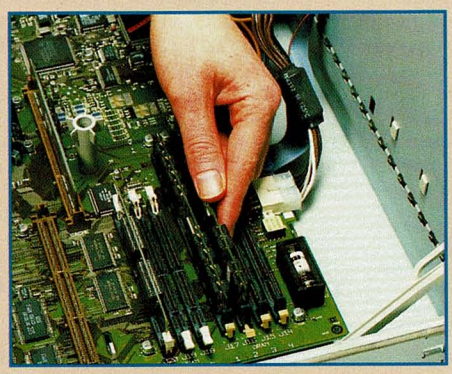
It's a great idea but, unfortunately, when loaded some of these libraries gobble up several megabytes of RAM. QuickTime, QuickDraw 3D, Open Transport, Game Sprockets and Apple's OpenDoc technology are all based on shared libraries. QuickTime tends to add around 2Mb to your System heap, and QuickDraw 3D can use anywhere between 4Mb and several *hundred* megabytes of RAM, depending on the complexity of the graphics it's dealing with. To make matters worse, some new software simply won't work without these key technologies. Many 3D programs won't work without QuickDraw 3D (which is PowerMac only), *Actua Soccer* won't work without Apple's Game Sprockets, and *Cyberdog* – Apple's very cool web browser – won't be interested in running unless you have OpenDoc installed, which is another PowerMac-only library (at present, anyway).

Shared libraries such as QuickDraw 3D are only loaded into RAM if needed, instead of at startup.

But let's be fair, these technologies are state-of-the-art and represent the cutting edge of Mac software. New software technology needs power and RAM above all else. Apple could simply have built all this technology into the core of the operating system without giving us any choice. This would have meant that even if you just used it to type letters, your Mac's System software would take up 30Mb of RAM or more on a daily basis. Using shared libraries means that the additional software is only present if you want or need it – and the RAM that it then uses can be reclaimed afterwards.



4 Here's the motherboard of the 7200. The white sockets at the top left are the PCI slots, the brown slot in the middle is the RAM cache, and the RAM and VRAM DIMM slots are at the bottom right. The larger set of slots are for RAM, and we're going to fit an 8Mb DIMM in here.



5 The DIMM will only go in one way round, with the smallest lug to the front of the Mac. Locate the edges of the DIMM into the plastic retainers and slide it down. Apply gentle even pressure to slot it into the socket.

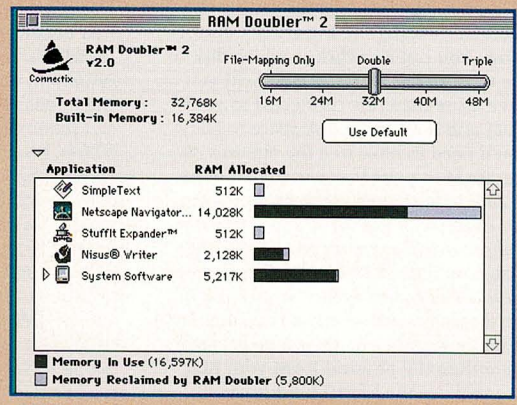
6 Put the Mac back together, reconnect the cables, and start it up. Check the About This Macintosh box. Again, if the total amount of memory hasn't changed or your Mac won't start up, the DIMM is not seated properly and you'll need to go back and refit it.

Cheating: a guide

If you can't afford real RAM and virtual memory is too slow for you, there are two memory-enhancing products you should consider seriously.

The first is *RAM Doubler 2.0* from Connectix. Actually, "doubler" is a bit of a misnomer because *RAM Doubler* can now *treble* the amount of usable memory you have. It works in three ways. First it improves your Mac's memory management by reassigning blocks of RAM that have been allocated to applications that aren't using them. Second, it compresses data not currently being used (rather like *Stuffit* does for files on your hard disk). And third – as a fall-back – it uses its own very efficient form of virtual memory. *RAM Doubler 2.0* comes with a Control Panel you can use to configure how much memory you want, from file mapping only (the improved memory management) to double, to treble memory. The optimum setting for most Macs is doubled memory, but some games might not like this, hence the file-mapping-only option.

RAM Doubler can increase your memory up to a maximum of 256Mb. If you have more than 84Mb of real RAM in your Mac, the maximum setting will still be 256Mb of RAM, even when _RAM Doubler_ is set to triple your memory. Still, 256Mb is an awful lot of memory, especially for a program that costs a mere £71. For more details, contact Computers unlimited on 0181 200 8282.

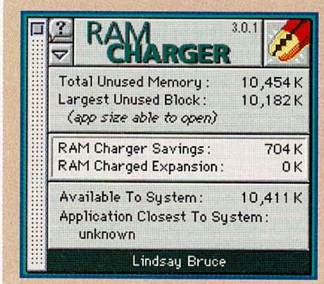


***RAM Doubler* improves memory handling, compresses data, and uses Virtual Memory to give you up to three times as much memory!**

Our second software memory hack is *RAM Charger* from Syncronys. *RAM Charger* essentially prevents memory fragmentation by resizing and moving application memory blocks on the fly. Normally, when an application is launched it grabs its chunk of memory and hogs it – no matter if it's using it or not. *RAM Charger* persuades the program to take only the memory it needs, and frees the rest up for use with other programs. When an application needs more memory, *RAM Charger* does a bit of quick reshuffling and gives the application however much it needs.

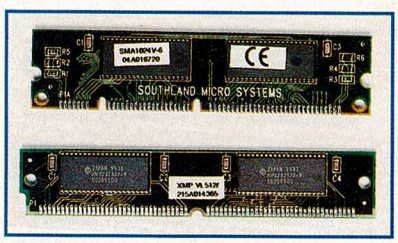
Essentially, *RAM Charger* does for applications what the System does for itself – grabs memory when it needs it, and releases it when it doesn't. However, the operating system isn't very good at dealing with fragmented memory, and *RAM Charger* excels in this area. But far and away the best thing of all is that *RAM Charger* will work quite happily with *RAM Doubler* – giving you even more RAM!

RAM Charger doesn't have a UK distributor as yet, but you can obtain it direct from the US for $39.95 (about £24) plus shipping. For more details, contact Syncronys in the US on 001 213 340 4100.



***RAM Charger* can reclaim memory by stealing it from applications that aren't actually using it.**

banks is maintained, so the contents of the RAM disk are not lost. It's only if you reset your Mac **[command] [option] [power key]**, switch off, or power is lost in some way, that the data in the RAM disk is lost. If you have enough RAM, then, you can install a System Folder onto the RAM disk and boot up from it. Starting up this way is extremely fast, and it's a handy alternative to using a floppy disk to start up on those occasions when you have to use Disk First Aid or Norton Utilities to repair a damaged hard drive. This is especially true now that it's near impossible to fit even the most minimal System Folder onto a floppy disk with System 7.5.2 and above (new Macs come with a startup CD rather than a floppy) without using Apple's installer, something that's not always practical.



Depending on what Mac you have, you'll have to use different VRAM modules. The top one is a 1Mb DIMM for use in PCI PowerMacs, while the bottom one is a 512K SIMM for use in the first series of PowerMacs (6100, 7100, 8100). To find out which your Mac needs, see *Guru 2.2* on the Cover CD and floppy.

Other types of memory

So far we've dealt mainly with your Mac's main memory, but there are other types. **VRAM** stores maps of images before they're sent to the monitor for display, and in most Macs this is expandable. Expanding your VRAM means your Mac can display more colours and higher resolutions.

The way your Mac handles the display is fairly simple. In black and white mode, for each pixel on your monitor there is a corresponding bit in VRAM which – by toggling between 1 and 0 – controls whether that pixel is black or white. It gets a bit more complex in 256-colour mode because each pixel requires eight bits (one byte) of memory to describe the colour the pixel should be. 32,768 colours (the "thousands" setting in the **Monitors** Control Panel) requires 16 bits, while 16.7 million colours requires 24 bits for every pixel.

All Macs made in the last five or so years are capable of displaying 256-colour images on a 640 x 480 pixel screen, and all Macs made in the last three years are capable of displaying thousands of colours at this resolution. Of course, you can have a screen resolution larger than 640 x 480 – figures of 832 x 624, 1,024 x 768 and even 1,200 x 1,600 are quite common – and this is where the amount of memory required to map all of the pixels on the screen starts to snowball – quite easily beyond the amount of VRAM that came with your Mac.

Upgrading VRAM is no more difficult than upgrading RAM, but for reasons of cost, simplicity, or sheer ignorance of the needs of the future, Apple didn't allow for VRAM expansion in some Mac models. However, all is not lost. As an alternative, you can fit a graphics card to nearly any Mac, and the VRAM on this will not only enable your Mac to display millions of colours at high resolutions, but actually display them faster than its original built-in circuitry can. For more details on graphics cards, see MACFORMAT 45. To find out if your can upgrade your Mac's VRAM, see *Guru* on the Cover CD.

PowerMacs and certain 68K Macs (IIvi, IIci) have yet another type of memory that can be upgraded – **RAM cache memory**. A RAM cache is used to store frequently-used data accessed from the Mac's main RAM. (If the data is required again, the processor gets it from the much faster RAM cache.) The RAM cache also tries to anticipate what data the processor will need next, and grabs it while the processor is busy.

The processors in PowerMacs and PowerPC Performas have caches built in: 32K on the 601, two 8K caches on the 603, two 16K caches on the 603e, two 16K caches on the 604, and two 32K caches on the 604e. On the 601 chip, the cache was a combined data and instruction cache, while on later chips these functions were separated for better performance. You can add a cache card to virtually all PowerMacs to supplement the processor's cache. Commonly known as **Level 2 cache cards**, they come in 256K, 512K, and 1Mb sizes for the PowerMacs and can speed your Mac up by between 15% and 30%, depending on the cache and the Mac model.

Strangely, some Mac clones (such as Umax's Pulsar) don't come with a cache card slot, but have a 512K cache soldered to the motherboard – not expandable.

Although the IIci has provision for a Level 2 cache, sadly we couldn't find anyone who still sells them, so if you don't have one already, your only hope is the second-hand market – see the reader ads in the back of MACFORMAT. **MF**

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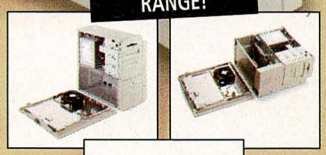

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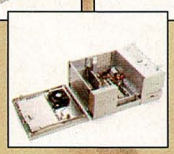

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NEW 8600 PowerMac - New EASY ACCESS K2 TOWER design with... • 604e CPU • 200MHz • 32Mb RAM • 12 Speed CD • Internal Iomega ZIP Drive • 2Gb Hard Drive • Ethernet • Inbuilt Graphics **only £2149**

NEW 7300 PowerMac Range - New 604e ADDITION to the 7000 range with... • 166MHz or 200MHz • 12 Speed CDs • 2Gb Hard Drives • Microsoft Office **from £1649**

NEW 4400 PowerMac Range - New FASTER UPRATED 4400s... • Now with 200MHz CPUs • NEW Comms Slot/Ethernet option **from £899**

See page 2 of this advertisement for further details about the NEW Macintosh computers or call Harwoods now and ask for additional information.

NEW 1440dpi PRINTERS

Epson Stylus Color 600
1440 x 720, 6ppm mono, 4ppm colour, plain paper printing, A4 size

Epson Stylus Color 800
1440 x 720, 8ppm mono, 7ppm colour, plain paper printing, A4 size

Epson Stylus Color 1520
1440 x 720, 960cps draft, 480cps LQ, plain paper printing, A4 to A2 size

EPSON Stylus

A MUST AT ONLY... £59 NEW APPLE SYTEM 7.6

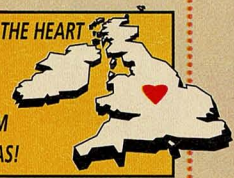
Showroom GH

If you want to see products for YOUR Apple System, there's no better place to visit than the great GH showroom. LOOK FORWARD TO SEEING YOU THERE.

visit THE BEST Showroom in the UK

We have more products in stock than those listed in our advertisement *(please phone and check about a particular item before making a long journey)* and our staff are happy to offer impartial and friendly advice. Why not call in and see us, we're at the heart of the UK and only around an hour's drive away from Birmingham, Northampton or Manchester. And... even travelling from **London** doesn't take much longer either!

GH ARE AT THE HEART OF THE UK, AN EASY DRIVE FROM MOST AREAS!



FREE QUICKTAKE 150

...when you purchase a 6400 Creative Studio Pack and an Apple Stylewriter 2500 Printer together. Take advantage of this offer and get a QuickTake 150 (srp £399) absolutely free of charge! HURRY, ENDS ON SAT. 29/3/97! OR... if you already have your Mac and want to be inputting instant colour images, see page 3 of this ad for details of a great price on the QuickTake 150, while stocks last!

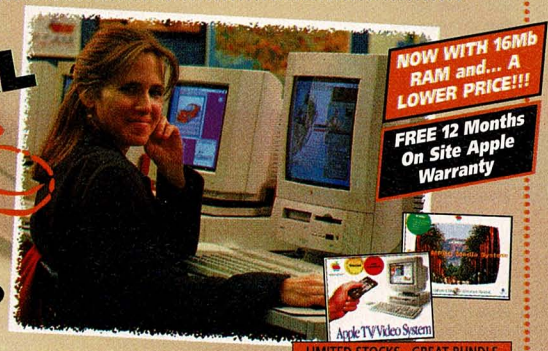
EXTRA £100 OFF WITH POWERBOOKS!

For a LIMITED PERIOD, GH are offering a discount of up to £100 on a range of PowerBook Accessories. Buy a new PowerBook 1400 before 31st March 1997, and you can then get one of the five accessories below at £100 off our normal price! Choose from... Dayna Ethernet Card, Newer NUpower 183 or 200MHz 1400 Upgrade Card, Barling Port Expandable Carry Case, TDK 28.8bps PCMCIA Modem or Southland 16Mb RAM Card OR if you prefer you can have £50 off the price of any other PowerBook Accessory!

JAZ CARTRIDGE SCOOP

1Gb Capacity Jaz Cartridges...
Single Cartridge **£59** Three Pack of Cartridges **£175**

SPECIAL GH limited offers



NOW WITH 16Mb RAM and... A LOWER PRICE!!!

FREE 12 Months On Site Apple Warranty

PERFORMA 5320

- 120MHz 603e PowerPC CPU
- Now with 16Mb RAM • 1.2Gb Hard Drive
- Quad CD ROM • Integral 15" Colour Monitor
- Built-in TV/Teletext Tuner • Video In facility
- MPEG for Full Motion Video from CD
- 28.8bps Modem • Apple Design Keyboard
- Disney Plus 3 Software Pack

ONLY... £1099 Just £8.70 Per Week*

REMEMBER... APPLE MPEG and TV/VIDEO SYTEM IS INCLUDED IN OUR 5320 OFFER!

DISNEY Plus 3 Software Pack...
• At Ease • Mavis Beacon • ClickArt • Thinkin' Things 2 • Claris Works • SuperMaze Wars • Millie's Math House • System Software • MacGallery • HyperCard Player • Spin Doctor ALL PRE-INSTALLED ON HD
PLUS on CD ROM...
• MYST • The Way Things Work • Daedalus Encounter • Rock Rap & Roll • Grolier Multimedia Encylopedia • Making Music • RedNex *AND*, Disney's... • LION KING Story Book • ALADDIN Activity Centre • THE TOY STORY (Preview)
AND... •THE APPLE INTERNET CONNECTION KIT

LIMITED STOCKS - GREAT BUNDLE FOR EXISTING USERS OF LC630 and... Performa 630, 5200, 5260, 5300, 5320, 6200, 6300 & 6320

APPLE MPEG MEDIA SYSTEM... MPEG Play Back Card & Video Player Software, Ocean Life: Hawaiian Islands, Return to Zork, Wild Africa, On The Edge Sports

APPLE TV/VIDEO SYSTEM... TV Tuner with Teletext, Video-IN Player Card, Remote Control & Avid VideoShop

Only **£199** *(normally £394)*

gordon harwood computers

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CHECK OUT THIS MONTH'S OFFERS AND LATEST NEW PRODUCTS HERE!

We accept most major Credit and Debit Cards and there are NO SURCHARGES!

For your protection all Cards are fully Security Checked

OFFICIAL ORDERS...
We supply Central, Local Government and Education Departments along with Major PLCs

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e-mail: info@ghc.co.uk

This advertisement is an invitation to treat, not an offer to sell. Offers are subject to availability. Consumers please ask for VAT inclusive prices. All transactions are subject to Harwood's Terms and Conditions of Sale, a copy of which is available on request. E.&O.E. Software/Product packaging for bundled systems/items may not be included and is shown for illustration purposes only.

gordon computers **harwood**

GH™

We've been building a solid reputation for the last 15 years... and our Apple accreditations support this.

Authorised Reseller

Authorised Service Provider

Commercial Credit Provider

Newton Centre

Authorised Higher and Further Education Alliance Reseller

- KEEN PRICES
- GREAT DEALS
- ESTABLISHED 1982
- APPLE APPOINTED
- WARRANTY OPTIONS
- SPEEDY DELIVERIES
- FRIENDLY STAFF
- CENTRAL TO UK
- FINANCE OPTIONS

GH PERSONAL FINANCE †
INCLUDING AN OPTION WITH NOTHING TO PAY UNTIL SUMMER '97!

PERSONAL FINANCE - DEFERRED PAYMENT PLAN♦ FOR INDIVIDUALS VISITING OUR SHOWROOMS AND PAYING A MINIMUM OF 10% DEPOSIT

OPTION 1: BALANCES OVER £2000: PAY NOTHING MORE FOR 6 MONTHS OR,

OPTION 2: BALANCES OVER £1200: PAY NOTHING MORE FOR 4 MONTHS OR,

OPTION 3: UNLIMITED BALANCES OVER £500: CHOOSE OUR 'LOW COST' FIXED TERM PERSONAL LOAN, 24.9% APR OVER 2 YRS, OR 21.9% APR OVER 3 YRS - a Lower Cost alternative 2 or 3 year agreement, for those who wish to spread the cost over a longer period than 4 or 6 months.

OPTIONS 1 & 2 - During the deferred period you can settle IN FULL (without finance charges) or... continue agreement with normal interest arrangements (ie. Direct Debit 27.8% APR, 2.07% Per Month or Payment Book 32.4% APR, 2.37% Per Month). For the first 4 or 6 months you'll also receive FREE Agreement Life Cover

Written details available on request. †Subject to status and an £18 arrangement fee. Please contact us prior to visiting for Easy Application requirements.

GH BUSINESS FINANCE...

BUSINESS FINANCE ♦: Weekly rates shown exclude VAT and are based on a fixed cost 3 Year Apple Commercial Credit Lease payable quarterly after an initial deposit payment. Available to all businesses (including recently established) making a minimum total purchase of £750 - *subject to status. FULL Details available on request.*

GH BUDGET ACCOUNT...

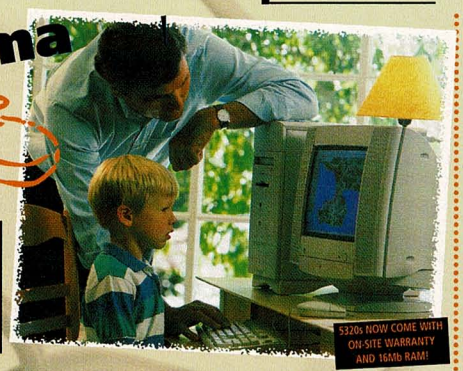
If you can't visit us personally, why not ask for an Application Pack to request a convenient, flexible GH BUDGET ACCOUNT CARD. No deposit finance can be arranged by mail. Once established, you can purchase with your new card leaving your existing credit card limits intact.

Harwood's Super Spring Savers...

pay Just 10% Deposit then Nothing until SUMMER♦

GH™ GH 15TH ANNIVERSARY 1982-1997

Performa MAC computers



FROM... £699
Just £5.55 Per Week✤

5320s NOW COME WITH ON-SITE WARRANTY AND 16Mb RAM!

Model	MHz	CPU	RAM	HD	CD	Display	TV/Text	Video	MPEG	Modem	Keyboard	Price	Software Pack
5260	100	603	12	800Mb	✔4	14" Integral	✘	✘	✘	✘	Design	**£799**	CLARIS WORKS
5260	120	603	12	1.2Gb	✔4	14" Integral	✘	✘	✘	✘	Design	**£899**	CLARIS WORKS
5320	120	603	16	1.2Gb	✔4	15" Integral	✔	✔	✔	✔28.8	Design	**£1099**	DISNEY PLUS 3
6320	120	603	12	1.2Gb	✔8	✘	✘	✘	✘	✘	Design	**£699**	DISNEY PLUS 3
6320	120	603	12	1.2Gb	✔8	15" M/S	✘	✘	✘	✘	Design	**£929**	DISNEY PLUS 3
6320	120	603	12	1.2Gb	✔8	15" AV M/S	✘	✘	✘	✘	Design	**£999**	DISNEY PLUS 3
5400	160	603e	16	1.6Gb	✔8	15" Integral	✘	✘	✘	✔28.8	Design	**£1199**	FAMILY PACK
5400 Black Mac	180	603e	16	1.6Gb	✔8	15" Integral	✔	✔	✘	✔28.8	Design	**£1399**	FAMILY PACK
6400	180	603e	16	1.6Gb	✔8	✘	✘	✘	✘	✔28.8	Design	**£1049**	HOME OFFICE
6400	180	603e	16	1.6Gb	✔8	15" AV M/S	✘	✘	✘	✔28.8	Design	**£1349**	HOME OFFICE
6400	200	603e	16	2.4Gb	✔8	✘	✘	✘	✘	✔28.8	Design	**£1199**	HOME OFFICE
6400	200	603e	16	2.4Gb	✔8	15" AV M/S	✘	✘	✘	✔28.8	Design	**£1499**	HOME OFFICE
6400	200	603e	24	2.4Gb	✔8	✘	✔	✔	✘	✔28.8	Design	**£1749**	CREATIVE STUDIO
6400	200	603e	24	2.4Gb	✔8	15" AV M/S	✔	✔	✘	✔28.8	Design	**£2049**	CREATIVE STUDIO

FREE QuickTake 150 Camera... when you buy a Creative Studio pack with a StyleWriter 2500 printer together! Offer ends 29/3/97.

FAMILY Software Pack...
• Mac OS • HyperCard Player • Acrobat Reader • MacLink Plus • Apple Video Player • Apple Telecom 3.0 • Claris Works 4.0 • At Ease • Apple Internet Connection Kit • 120 Letters • Performa ClickArt • Descent • Full Throttle • Thinkin' Things 3 • Sammy's Science House • Grolier Multimedia Encyclopaedia • The Best of European Soccer • DK's Ultimate Human Body • PowerPete *PLUS...* • Disney Pack VOLUME 1 • Aladdin Activity Centre • Lion King • Story Book and... • The Toy Story Preview

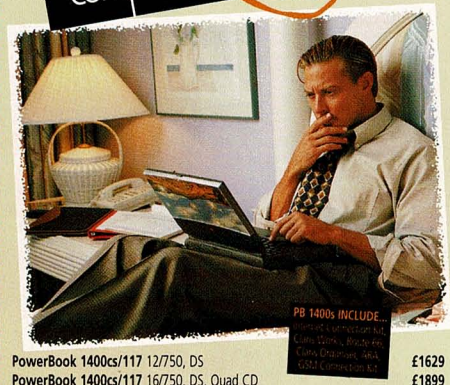
HOME OFFICE Software Pack...
• All the items listed in the FAMILY pack *PLUS...* • Claris Impact and... • Claris Organiser!

DISNEY Plus 3 Software Pack...
• At Ease • Mavis Beacon • ClickArt • Thinkin' Things 2 • Claris Works 3 • Millie's Math House • Spin Doctor • System Software • MacGallery • HyperCard Player • SuperMaze Wars ALL PRE-INSTALLED ON HD. *PLUS on CD ROM...* • Making Music • MYST • The Way Things Work • Daedalus Encounter • Grolier Multimedia Encyclopedia • RedNex • Rock Rap & Roll *AND*, Disney's... • LION KING Story Book • ALADDIN Activity Centre • TOY STORY (Preview) *PLUS...* •THE APPLE INTERNET CONNECTION KIT

CREATIVE STUDIO Software Pack...
• All the items listed in the FAMILY pack *PLUS...* • Cubase AV • Power GOO • Dabbler • Avid Cinema • Adobe PhotoDeluxe and... • Adobe PageMill

PERFORMA 630, 5200, 5260, 5300, 5320, 6200, 6300 and 6320 OPTIONS...
• **Personal COMMS Solution** *(models without Ethernet)* FAX, Internet and Answer Phone facility, etc... **14.4** version **£109** **28.8** version **£179**
• **Ethernet Cards** *(models without Personal Comms)* **Thin Co-Ax £59 UTP £59 AUI** (requires adaptor) **£59** • **Apple** Internet Connection Kit **£47**
• **Apple** Video Out Card **£219** • **MPEG** FMV Video CD Playback Card *(only fits 630 models without a DOS Card)* **£175** • **D2** FM Radio Tuner **£59**
PERFORMA 5400 and 6400 OPTIONS...
• **Apple** Video-In Card **£69** • **Apple** Video-In TV Tuner Card **£129** • **Apple** COMMS Slot II Ethernet Card **£75** • **Apple** 256K Level 2 Cache Card **£75**

PowerBook MAC computers



PB 1400s INCLUDE... Internal 14.4 Fax/Modem Kit, Built-in 10BT Ethernet, Built-in Video Capture, ADB, GSM Connection Kit

PowerBook 1400cs/117 12/750, DS	**£1629**
PowerBook 1400cs/117 16/750, DS, Quad CD	**£1899**
PowerBook 1400cs/117 16/750, Quad CD, DS, StyleWriter 2200, Carry Case	**£2149**
PowerBook 1400c/133 16/1100, Quad CD	**£2649**
PowerBook 3400c/180 16/1300	**£2999**
PowerBook 3400c/180 16/1300, 6 Speed CD, Ethernet	**£3199**
PowerBook 3400c/200 32/2000, 6 Speed CD, Ethernet, inc. SoftWindows 3.11	**£3749**
PowerBook 3400c/240 16/3000, 12 Speed CD, Ethernet	**£4399**
PowerBook Duo 2300c/100 20/1100 EM AM	**£1549**

POWERBOOK OPTIONS...

1400 6 Speed CD ROM	**£199**	**1400** 8-Bit Video Out Card	**£70**
1400 ZIP Drive VST	**£219**	**1400** 8Mb Upgrade	**£65**
1400 Car Adaptor VST	**£79**	**1400** 16Mb Upgrade	**£119**
1400 AC Adaptor	**£39**	**1400** 24Mb Upgrade	**£159**
1400 Battery	**£69**	**PowerBook Carrycases**	*from* **£25**
1400 TDK 28.8 Fax/Modem	**£229**	*Accessories available also for earlier PBs inc.150/190/5300*	

MEMORY

RAM	4Mb	8Mb	16Mb	32Mb	64Mb
SIMMs	£CALL FOR BEST PRICES!				
DIMMs	£CALL FOR BEST PRICES!				

8/16/32/64Mb EDO DIMM UPGRADES AVAILABLE PLEASE CALL

Displays MAC

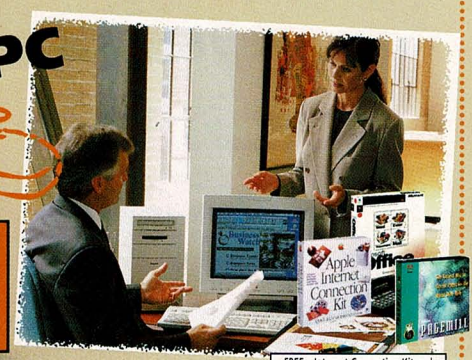
GH Budget 14" Multisync (.28)	**£189**
GH 15" Multisync (.28)	**£239**
Apple 15" Multiscan (.28)	**£289**
Apple 15" AV Multiscan (.28)	**£359**
Apple 17" 1705 TCO MultiScan (.26)	**£449**
Apple 17" 1710 TCO Trinitron MultiScan (.26)	**£549**
Apple 17" 1710AV TCO Trinitron MultiScan (.26)	**£599**
Apple 20" Trinitron MultiScan II (.26)	**£1199**
Mitsubishi 15" Diamondtron HX Multisync	**£259**
Mitsubishi 17" Diamondtron TXV Multisync (.25)	**£425**
Mitsubishi 17" Diamondtron TXM Multisync (.25)	**£499**
Mitsubishi 21" Diamondtron TX Multisync (.30)	**£999**
Mitsubishi 21" Diamondtron TXM Multisync (.28)	**£1049**
Sony 15" 100SX Trinitron Multisync (.25)	**£299**
Sony 15" 100SFT Trinitron Multisync (.25)	**£339**
Sony 17" 200SX Trinitron Multisync (.25)	**£489**
Sony 20" 300SFT5 Trinitron Multisync (.30)	**£1049**
Formac 17" Diamondtron F17 FST Multisync (.26)	**£399**
Formac 17" ProNitron F17 400 Multisync (.26)	**£499**

GH Prices **INCLUDE Adaptors** for all Monitors **FREE!**

DISPLAY OPTIONS...
Video and Graphics Cards...

I.M.S. Twin Turbo 2Mb Card	**£249**
I.M.S. Twin Turbo 8Mb Card	**£649**
Formac ProVision 2/20 (2Mb, 64 Bit, Half Length)	**£159**
Formac ProVision 2/40 (4Mb, 64 Bit, Half Length)	**£199**
Formac ProVision 4/60 (4Mb, 128 Bit, Half Length)	**£299**
Formac ProVision 4/80 (8Mb, 128 Bit, Half Length)	**£369**
Formac ProVision 4/80 (8Mb, 128 Bit, Accelerated, Half Length)	**£549**
Miro Motion DC20 Video Editing Card (Adobe Premiere 4.2)	**£699**
VRAM Upgrades... To give even higher screen resolutions and more colours etc.	**£CALL**

PowerPC MAC computers



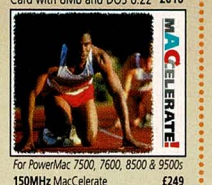
FROM... £799
Just £6.32 Per Week✤

Model	MHz	CPU	RAM	DRIVE(S)	CD	Ethernet	Display	Graphics	Keyboard	Price
4400/160	160	603e	16	1.2Gb	✔8	✘	✘	Inbuilt	Design	**£799**
4400/160	160	603e	16	1.2Gb	✔8	✘	15" M/S	Inbuilt	Design	**£999**
4400/200	200	603e	16	1.2Gb	✔8	✘	✘	Inbuilt	Design	**£899**
4400/200	200	603e	16	1.2Gb	✔8	✘	15" M/S	Inbuilt	Design	**£1099**
4400/200	200	603e	16	2Gb	✔8	✔	✘	Inbuilt	Design	**£999**
4400/200	200	603e	16	2Gb	✔8	✔	15" M/S	Inbuilt	Design	**£1199**
7200/90	90	601	8	1.2Gb	✔4	✔	✘	Inbuilt	✘	**£949**
7300/166	166	604e	16	2Gb	✔12	✔	✘	Inbuilt	Extended	**£1649**
7300/200	200	604e	32	2Gb	✔12	✔	✘	Inbuilt	Extended	**£1999**
7600/132	132	604	16	1.2Gb	✔8	✔	✘	Inbuilt	✘	**£1349**
8200/120	120	601	16	1.2Gb	✔8	✔	✘	Inbuilt	✘	**£1049**
8500/180	180	604e	16	2Gb	✔8	✔	✘	Inbuilt	✘	**£1899**
8500/180	180	604e	32	2Gb	✔8	✔	✘	Inbuilt	✘	**£1959**
8550/200	200	604e	32	2Gb	✔8	✔	✘	✔IMS	✘	**£1999**
8600/200	200	604e	32	2Gb + ZIP	✔12	✔	✘	✔IMS	Extended	**£2149**
9500/200	200	604e	0	0Gb	✔8	✔	✘	✘	✘	**£1499**
9500/200	200	604e	32	2Gb	✔8	✔	✘	✔IMS	✘	**£2099**
9500/2x180	2x180	604e	32	2Gb	✔8	✔	✘	✔IMS	✘	**£2499**
9600/200	200	604e	0	0Gb	✔12	✔	✘	✘	Extended	**£1799**
9600/200	200	604e	32	4Gb	✔12	✔	✘	✔IMS	Extended	**£2499**
9600/2x200	2x200	604e	32	4Gb	✔12	✔	✘	✔IMS	Extended	**£3199**
9600/233	233	604e	0	0Gb	✔12	✔	✘	✘	Extended	**£2199**
9600/233	233	604e	32	4Gb	✔12	✔	✘	✔IMS	Extended	**£2999**

FREE... Internet Connection Kit and PageMill with ALL Power Macs and Microsoft Office FREE with... 7300, 7600, 8200 and 8600 models!

POWERMAC OPTIONS...

256k Cache DIMM (75/85/9500)	**£76**
512k Cache DIMM (75/85/9500)	**£97**
ETHERNET 10 BaseT (RJ45), 7" PCI Expansion Card	**£85**
ETHERNET 10 BaseT and 10 Base2 (Thin Coax), 7" PCI Card	**£108**
Apple 586 100MHz, PC - PCI Card with 8Mb and DOS 6.22	**£489**
Apple Pentium 100MHz, PC - PCI Card with 8Mb and DOS 6.22	**£610**



For PowerMac 7500, 7600, 8500 & 9500s

150MHz MacCelerate	**£249**
180MHz MacCelerate	**£349**
200MHz MacCelerate	**£499**

Manufacturers' specifications and GH prices are correct at time of going to press; however, they may fluctuate and we therefore reserve the right to amend them - please confirm prices before ordering.
Software/Product packaging for bundled systems/items may not be included and is shown for illustration purposes only.

PRINTERS

LASER PRINTERS...

APPLE LaserWriter 4/600PS - A4, 600 dpi Mono £599
APPLE LaserWriter 12/640PS - A4, 600 dpi Mono £1099
APPLE LaserWriter 16/600 - A4, 600 dpi Mono £1399
APPLE LaserWriter 12/660PS - A4, 600 dpi Colour £4499
HP LaserJet 6MP - A4, 600 dpi Mono, 3Mb RAM, 8ppm. Features both Parallel and Local Talk Connections £649
LEXMARK 4079+ - 360 dpi Mono, 4Mb, PS2, LocalTalk £2149
LEXMARK 4079+ Pro - 360 dpi Mono, 20Mb, PS2, LocalTalk £2389
LEXMARK Optra R+ - A4, 1200 x 1200 dpi Mono, 8Mb, LocalTalk, 16 ppm, On-Site Maintenance £1199
NEWGEN DXP - A3, 600 x 600 dpi Mono, Ethernet, PS2, LocalTalk, 8 ppm £2399
NEWGEN DXP+ - A3, 1200 x 1200 dpi Mono, Ethernet, PS2, LocalTalk, 8 ppm £3999
GCC Elite 12/12 - A4, 600 x 600 dpi Mono, 16Mb, Ethernet, features Edge to Edge print! £1099
GCC XL 608 - A4, 600 x 600 dpi Mono, 6Mb, Ethernet, features Edge to Edge print! £1899

INKJET PRINTERS...

APPLE StyleWriter 1500 Colour 720 x 360dpi £149
APPLE StyleWriter 2200 Colour 720 x 360dpi £229
APPLE StyleWriter 2500 Colour 720 x 360dpi £229
APPLE StyleWriter EtherTalk Kit £145
CANON BJC4550 Colour - A3 Mac or Amiga £309
EPSON Stylus Colour 500 720 x 720dpi - Now includes Epson 'T' Shirt Printing Factory Whilst Stocks Last! £209
EPSON Stylus Colour 600 - Colour - A4 1440 x 720dpi £239
EPSON Stylus Colour 800 - Colour - A4 1440 x 720dpi £349
EPSON Stylus Pro Colour - Colour - A4 720 x 720dpi £314
EPSON Stylus Pro XL+ - Colour - A3 720 x 720dpi £829
EPSON Stylus Colour 1520 - Colour - A2 1440 x 720dpi £679
HP 870Cxi DeskWriter - Colour 600 x 600dpi £329

PRINTER UTILITIES...

POWERPRINT - Allows use of parallel printers with your Mac £79
STYLESCRIPT - Adobe PS RIP for Apple Colour StyleWriters £79
BIRMY PostScript RIP - for Stylus Pro/Pro XL+ £175

PRINTER CONSUMABLES

APPLE STYLEWRITER...

I, II, Portable, 1200, 1500 (M8041G/A) Black Cartridge £14
1500 (M4609G/A) Colour Cartridge £23
2400, 2500 (M3240G/A) Black Cartridge £26
2400, 2500 (M3328G/A) Colour Cartridge £33
2400, 2500 (M3330G/A) Black Ink Tank £7
2400, 2500 (M3329G/A) Colour Ink Tank £13
2500 (M5577ZM/A) Photograde Kit £47
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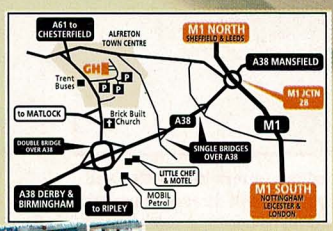

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Be an xRes expert!

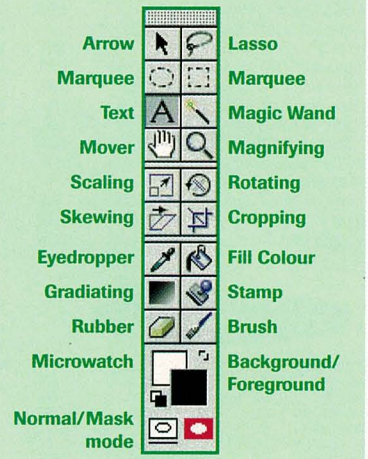
Our generosity knows no bounds. In MACFORMAT 47 we brought you *xRes 2.0 SE*, a fully working version of this top quality image-editing package. Now, Jim Chandler helps you get the best from it! (You could even try this project using the *xRes 3* demo on this issue's Cover CD...)

Last month, we showed you how to use masks to make composite images in *xRes 2.0 SE*. This month, we're looking at text, selections and effects. Once again, our example image came from the same disk as *xRes 2.0 SE*, so if you want to work through the tutorial with us, you can.

xRes 2.0 SE scores high (even over the mighty *Photoshop)* in having natural-media brushes. These simulate the effects of calligraphic brushes and pens and even crayons, and can help to give a less "computerised" feel to your images, and we'll be looking at these as well.

You'll need a Mac with a 68040 processor or a PowerMac, 8Mb of RAM (16Mb recommended) and at least 10Mb of free hard disk space. If you use "xRes mode", which enables you to manipulate large images more quickly, you'll need around 500Mb free for the best results.

xRes tools

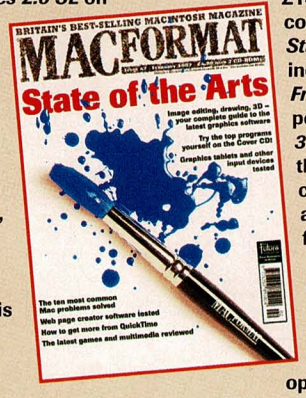


Upgrade!

We brought you Macromedia *xRes 2.0 SE* on the MACFORMAT 47 Cover CD (UK and Europe only). It's a complete, fully-working professional quality image editor, with all the tools you need for most tasks.

The latest version, *xRes 3.0,* has additional specialist functions such as CMYK separations, path support, and a whole lot more besides.

If you find you like the *xRes* approach, you can upgrade to this new version for a very special price through MACFORMAT. Upgrading to *xRes 3.0* will cost just £149, while Macromedia's complete *FreeHand Graphics Studio 7.0* is just £249! This includes not just *xRes 3.0* and *FreeHand 7.0* but also the powerful 3D package *Extreme 3D 2* and *Fontographer 4.1,* the industry-standard font creation tool, plus 10,000 clip art images, 500 TrueType fonts, and much more.



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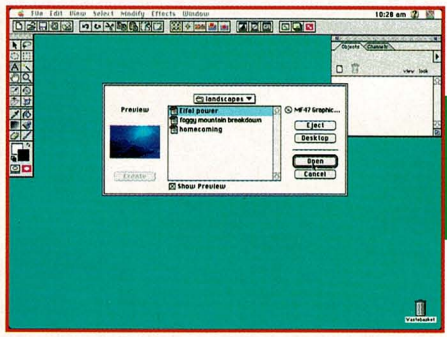
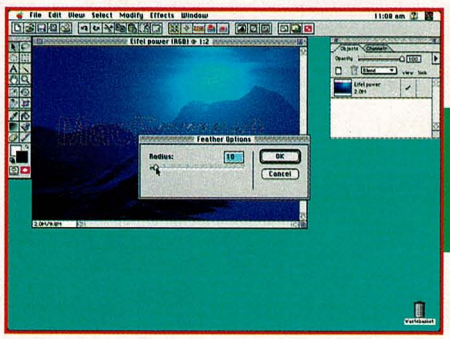
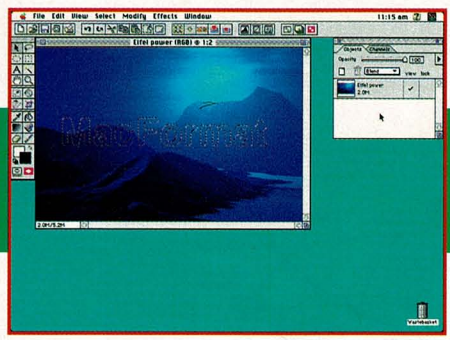


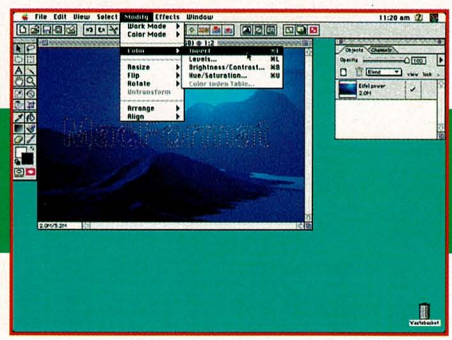
1 For this example, we used Colin Robinson's "Eifel Power" from the **Best of Readers' Art** folder (which you'll find on the xRes 2.0 SE CD). You're going to apply a fashionable blurred text effect using xRes 2.0 SE's text and selection tools. Use the **Open** command from the **File** menu, and select this image from MACFORMAT 47's *xRes* CD.



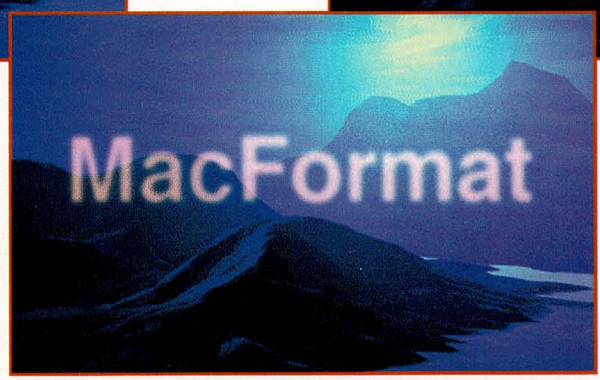
5 You don't need the text object any more, so delete it by dragging its thumbnail to the little wastebasket icon in the **Objects** palette. To make a blurred effect for the text, go to **Select -> Feather** and enter a value for the feather radius. This is the distance in pixels over which you want the text to "fade out".



6 Now the outlines of the letters look fatter and more rounded. If you haven't already done so, *save your file!* You're going to use this selection as the basis for some special effects, using *xRes 2.0 SE's* filters and natural-media brush tools.



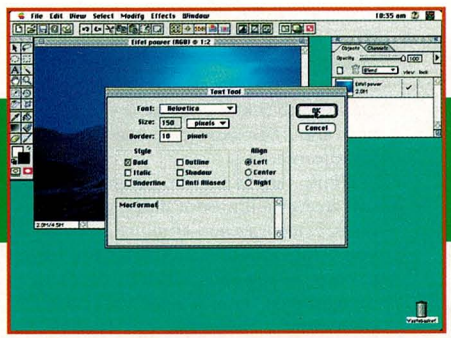
7 Now the fun starts. One of the most effective filters you can use is the simple **Invert** function. This makes the selected area into a negative of itself, like the negatives you get with your holiday snaps. Go to the **Modify** menu and select **Colour -> Invert,** then choose **None** from the **Select** menu.



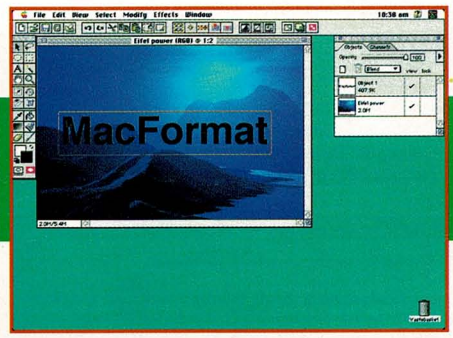
These are just a few ideas of what *xRes* can do. *xRes 2.0 SE* has a few filters to play with, but it can also use *Photoshop* filters. There are quite a few of these available as shareware – check out MACFORMAT's Cover CD for them. Remember, you can apply filters more than once, and also different filters to the same area if you want to create more complex effects. Experiment, and have fun!

Read me!

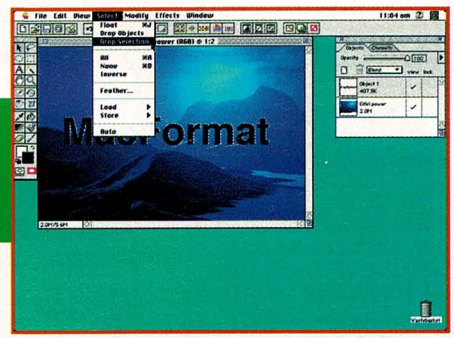
Want to know the serial number to get into *xRes 2.0 SE*, as included on MACFORMAT 47's Cover CD? Then read the file marked "Important" in the *xRes* folder on that CD.



2 Click on the text tool, and then click on the image where you want your text to start. A dialogue box will appear, asking for details of fonts and sizes, plus, of course, what text you want to set. We used Helvetica Bold, which you will probably have installed – but if not, don't worry. Any PostScript or TrueType face will work. Simply try a few out, and then pick your favourite.

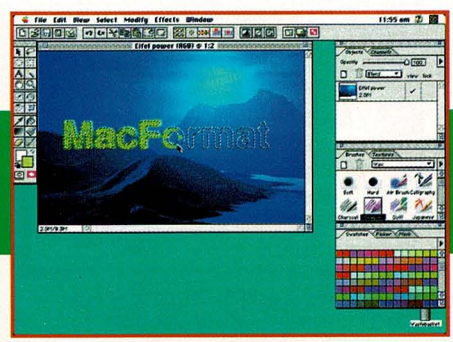


3 If your text appears in the wrong place, simply click on the arrow tool, then drag the text to the correct position. Take a look at the **Objects** palette. You can see that the text is actually a movable and editable object in its own right.

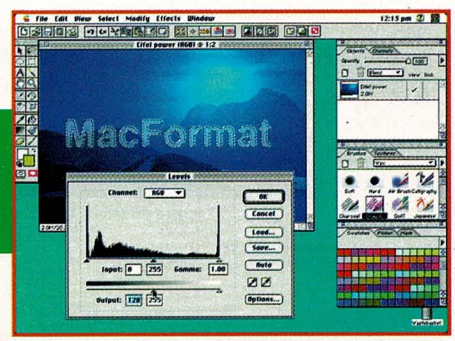


4 You don't want solid black text, but you *do* want the outline of that text – so you need to convert the text's **Mask** channel into a selection. Go to the **Select** menu and choose **Load -> #4.** Now go back to the **Select** menu and choose **Drop Selection.** The outline of your text is now a selection of the "Eifel Power" object.

8 To try another effect, choose **Revert** from the **File** menu. Now take a look in the **Effects** menu. The most fun effects tend to live in the **Distort** or **Stylise** categories. **Solarize,** for instance, gives a nicely garish effect – perfect for those indie Britpop anthology CDs. The key to good effects use is experimentation – try different values until you get an effect you like.



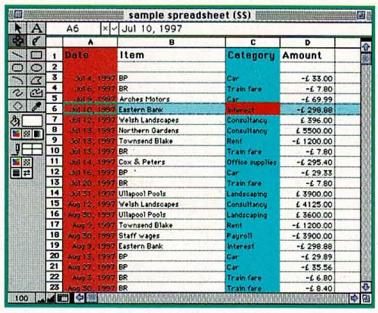
9 *xRes 2.0 SE* has some nifty natural-media brushes to help give your pictures a more hand-drawn feel. My favourite is the wax crayon (they won't let me have anything sharp). Click on the **Crayon** icon in the **Brush** palette, choose a contrasting colour from the **Swatches** palette, and get scribbling.



10 Another fashionable design idea is "ghosting" or "knocking back", where an element is made to appear paler than the rest of the image. It's also useful if you're designing a Web page with a background image. Simply select **Levels** from **Colour** under the **Modify** menu, and adjust the **Output** slider until you get the result you're looking for. **MF**

Make yourself accountable

The trees are budding, the birds are chirruping and you're quaking in your boots at the prospect of a new tax year. Rod Lawton knows how you feel...



When you're doing your yearly accounts it makes sense to use a spreadsheet, right? Wrong! You'd be much better off with a *ClarisWorks* database.

If you work for a salary, you don't know how lucky you are, because your employers sort out the nitty gritty tax and accounting paperwork. Self-employed types, though, are quaking in their boots right now. Why? Because we're just about at the end of the tax year, that's why. And that means putting the annual accounts together and either using them as the basis of a tax return or taking them down to your accountant.

Either way, you're going to need to draw the year's transactions into some kind of logical, coherent document. If you're going to sort out your own tax return, this will make your job easier. If you're going to pass the whole lot over to your accountant, it will reduce the bill.

At the very least, you (or your trusty accountant) will want transactions sorted by date and assigned categories such as rent, personal pension premiums, car expenses and so on, each of which will have different tax implications.

That's a good starting point. But you'll also need to be able to create summaries – for your own information, if not your accountant's. For example, how much profit did you make in each month? What was the total cost of renting your premises for the whole year? How much did you spend on petrol, and how should that sum be split between business and private use?

Clearly, the more information you want to pull out of your accounts, the more thought you have to give to the way you record them.

Pass the spreadsheet...

A spreadsheet is the obvious solution – but it's also the wrong one. You might imagine software designed specifically for number crunching would be the perfect choice, and that a huge table of dates, facts and figures could be easily mined for information.

Hmm... up to a point. Although you can create columns for dates, transactions, categories and amounts, how do you create monthly subtotals? You have to enter all the data, sort it by date and then insert a "total" row at the end of each month. This works well enough until you find another shoe box full of receipts and have to squeeze them in, upsetting your formulae and cell ranges.

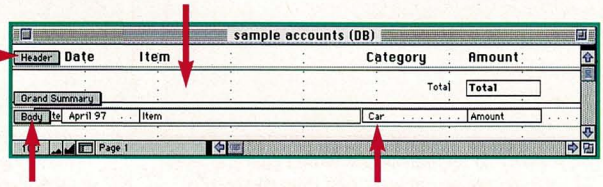
The fact is that unless you can supply your accountant with a spreadsheet

What's it all about?

Our sample accounts database has been designed to mimic the appearance of a spreadsheet, but is much more usable.

Grand Summary: This contains the special Total field which calculates the total of all the transactions displayed. By carefully defining your searches, you can control which records are displayed and summed.

Header: Rather than have each field labelled in each record, we've created a text box in the header area to hold the field names. Carefully placed tabs line up the titles with the fields.

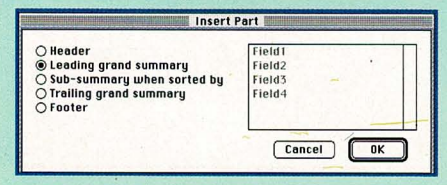


Body: All the fields we've used – Date, Month, Item, Category and Amount – are lined up in a row to mimic the appearance of a spreadsheet.

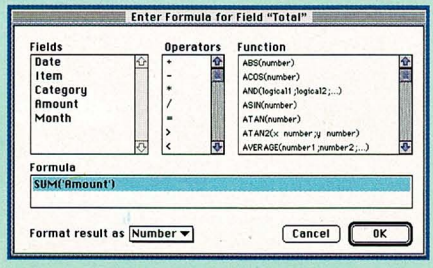
Pop-up fields: Using pop-up fields to store the Month and Category of each transaction makes it much easier to create the reports you need later on.

And now to summarise...

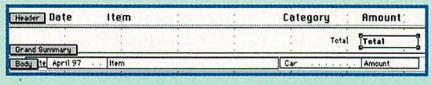
Summaries are quite a difficult concept to grasp, so here's a step-by-step guide to creating the summary used in this month's example database. Once you've done this, you'll be able to total your income and expenditure by month or category.



1 First of all, you need to be in Layout mode. Then choose **Insert Part...** from the **Layout** menu. Choose **Leading Grand Summary** from the options available – this creates a "Grand Summary" area at the top of the layout for displaying summary information...



2 ...which isn't much use to you until you create a Summary field to calculate that information. To do this, choose **Define Fields...** from the **Layout** menu. Create a new field called "Total" and choose **Summary** from the pop-up **Field Type** menu. You'll now be prompted to type in a formula – use the one in the illustration, which calculates the total of all the **Amount** fields currently displayed.



3 Now drag the new field into the Grand Summary area of the layout. We've created a Leading Grand Summary so that the total is displayed above the list of records. We could also have created a Trailing Grand Summary, but that would mean you'd have to scroll right down to the bottom of the list of records to see the total, which isn't nearly as convenient.

You can restyle the field just as you would any other, and delete the label if you want. Do remember to make sure the **Page View** option in the **View** menu is checked. If you don't do this, *ClarisWorks* doesn't display summaries (or sub-summaries). Don't ask us why, it's just the way it is – and if you don't know this little fact you can spend many a frustrating hour trying to get your summaries to work...

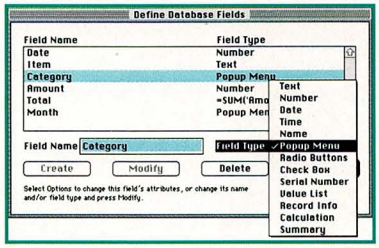
document in exactly the format they need, you'll be much better off with a database. Databases are perfectly capable of the basic summary calculations needed for analysing your accounts, and they are very good at sorting transactions and filtering out just the ones of interest.

However, the spreadsheet's row-and-column layout is useful for drawing up accounts. You can recreate it effectively enough by jiggling the layout of your database. In *ClarisWorks*, which we've used for the examples here, there's a **List view** which displays the field names across the top of the window, with the records arranged in rows underneath.

But *ClarisWorks*' **List view** has two drawbacks. First, it doesn't display special field formatting, so you can't display numbers as currency. Second, it doesn't display Summary fields – and that's important, as we shall see shortly.

This means that once you've created a database with the fields you need, you have to move them up onto a single line and create a header containing the field titles to get the effect you want.

One of the advantages of using a database rather than a spreadsheet to do your yearly accounts is that you can create pop-up fields. (In *ClarisWorks*, anyway – other programs may use pick-lists or other devices.) These are useful when you want to choose an entry from a carefully defined list. In this case, you can use a pop-up field to define transaction "categories". This prevents extra categories creeping in and rules out spelling errors – both of which are crucial when it comes to analysing your data.



***ClarisWorks*' pop-up fields are excellent for defining a list of specific choices. They force you to choose one of a series of options rather than inadvertently creating new variants of the same entry (for example, "petrol" and "fuel"). Pop-up fields also make searches simpler.**

Month by month

In our example, we've used two pop-up fields: one for a transaction's category, and one for the month it took place. It might seem a bit clumsy to have one field for the date and another for the month, but there is some logic to this. Although you could have a single field formatted to accept dates, it would be much harder to generate reports.

Reports are the lifeblood of businesses, because it's essential to know what you spent, and when. You need to work out who was your best customer and how much you earned from them. You need to find out whether your profits are seasonal, peaking and dipping at certain times of the year... and so on.

Most of these analyses will be on a month-by-month basis, and you'll carry them out by using your database's **Find** function to display all the transactions in that month. It's much easier to select "June 97" from a pop-up menu than to write a search formula that eliminates dates before 1 June and after 30 June – which is what you'd have to do if the dates were stored in a simple date field.

Your pop-up menu for categories proves its worth here, too. Want to know how much you spent on office supplies last year? Use the **Find** command, then select the appropriate option from the pop-up list. How about the amount you spent on petrol in December? Use the month and category pop-up lists together to narrow the search – simple.

It all adds up

Most of the analyses you carry out on your figures will be variations on the same theme – finding out how much you spent on certain items (or received from certain sources), finding out how much you spent or earned during a certain period, or both. These processes involve weeding out the transactions you're interested in and totalling them up.

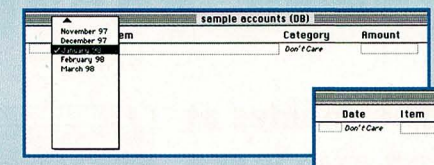
Sounds tricky? Not at all – you just need to know how to use **Summaries**. The sort of summary you need is the simplest – a **Grand Summary.** You can use it to calculate the total of all the visible transactions in your database. If you show all the transactions in the year, it will give you a total profit figure; if you search out all the transactions in August, it will give you August's profit.

If your business is complex and involves "what-if" scenarios and forecasts, you'll need the tools provided by spreadsheets. But if you want a way of recording transactions that's going to be straightforward for your accountant to deal with and will give you lots of information very quickly, a database such as the one shown here will be ideal.

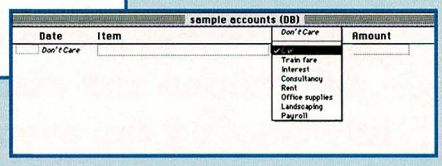
Check out the boxes on these pages for in-depth help on creating summaries in *ClarisWorks* and wringing valuable information out of your records – and good luck with that tax return... **MF**

Sample reports

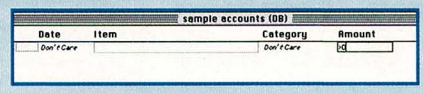
The *ClarisWorks* accounts database we've set up here can generate a wide range of extremely useful reports. Here are a few examples, together with the Find dialogue settings you should use. You'll soon see how you can adapt them to your own needs...



How much profit did I make in January? (Choose "January" in the pop-up Month field.)



How much did it cost to run the car last year? (Choose "Car" from the pop-up Category field.)



What was my gross income for the year? (Type ">0" in the Amount field.)

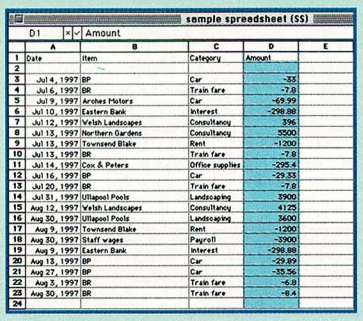
Importing spreadsheets

Oh no! This advice is far too late! Your accounts have been laboriously typed into a *ClarisWorks* spreadsheet!

No need to panic. You can simply save your spreadsheet as an ASCII file and open it as a *ClarisWorks* database. There are just a couple of things you need to watch out for.

First, you'll have problems translating date-formatted cells into date-formatted database fields. Your best bet is to choose the date format you like in the spreadsheet file. The exported ASCII file will retain that format. You should then leave the date field in the database as a Text field and use a different search method to locate transactions in a specific month. For example, if you used the date format "Jul 12,1997", type "Jul" in the Date field when you carry out a Find.

Secondly, if you've used "Currency" cell-formatting in your spreadsheet, switch it off when you export it.



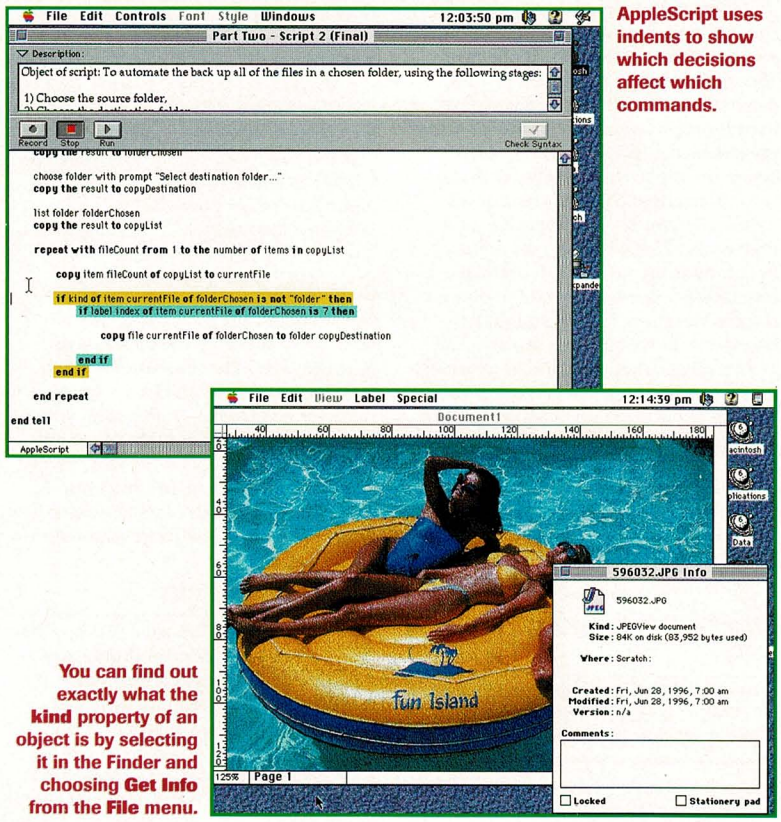
	A	B	C	D	E
1	Date	Item	Category	Amount	
2					
3	Jul 4, 1997	BP	Car	-33	
4	Jul 6, 1997	BR	Train fare	-7.8	
5	Jul 9, 1997	Arches Motors	Car	-69.99	
6	Jul 10, 1997	Eastern Bank	Interest	-298.88	
7	Jul 12, 1997	Welsh Landscapes	Consultancy	396	
8	Jul 13, 1997	Northern Gardens	Consultancy	3500	
9	Jul 13, 1997	Townsend Blake	Rent	-1200	
10	Jul 13, 1997	BR	Train fare	-7.8	
11	Jul 14, 1997	Cox & Peters	Office supplies	-295.4	
12	Jul 16, 1997	BP	Car	-29.35	
13	Jul 20, 1997	BR	Train fare	-7.8	
14	Jul 31, 1997	Ullapool Pools	Landscaping	3900	
15	Aug 12, 1997	Welsh Landscapes	Consultancy	4125	
16	Aug 30, 1997	Ullapool Pools	Landscaping	3600	
17	Aug 9, 1997	Townsend Blake	Rent	-1200	
18	Aug 30, 1997	Staff wages	Payroll	-3900	
19	Aug 9, 1997	Eastern Bank	Interest	-298.88	
20	Aug 13, 1997	BP	Car	-29.89	
21	Aug 27, 1997	BP	Car	-35.56	
22	Aug 3, 1997	BR	Train fare	-6.8	
23	Aug 30, 1997	BR	Train fare	-8.4	
24					

You can export data from a spreadsheet as an ASCII file, which you can then open as a *ClarisWorks* database. Make sure you choose a convenient date format, though, and don't leave amounts in Currency format.

Otherwise the database will import the "£" signs too, and you won't be able to convert the Amount field to Number format without erasing your precious data.

The deciding factor

AppleScript is a master at automation and with just a little coaxing can even make decisions for you. Thinking cap in hand, Nial Grimes sets about giving your backup script a brain...


File Edit Controls Font Style Windows 12:03:50 pm
Part Two - Script 2 (Final)
Description:
Object of script: To automate the back up all of the files in a chosen folder, using the following stages:
1) Choose the source folder,
Record Stop Run Check Syntax
choose folder with prompt "Select destination folder..."
copy the result to copyDestination
list folder folderChosen
copy the result to copyList
repeat with fileCount from 1 to the number of items in copyList
copy item fileCount of copyList to currentFile
if kind of item currentFile of folderChosen is not "folder" then
if label index of item currentFile of folderChosen is 7 then
copy file currentFile of folderChosen to folder copyDestination
end if
end if
end repeat
end tell
AppleScript
File Edit View Label Special 12:14:39 pm
Document1
596032.JPG Info
596032.JPG
Kind: JPEGView document
Size: 84K on disk (83,952 bytes used)
Where: Scratch:
Created: Fri, Jun 28, 1996, 7:00 am
Modified: Fri, Jun 28, 1996, 7:00 am
Version: n/a
Comments:
Locked
Stationery pad
Fun Island
125% Page 1

AppleScript uses indents to show which decisions affect which commands.

You can find out exactly what the kind property of an object is by selecting it in the Finder and choosing Get Info from the File menu.

ON THE CD

Example scripts that you can follow.

Important!

The ¬ symbol we've used in our scripts indicates that the instruction hasn't ended, but continues on our next line. When you see this, don't enter the ¬ symbol or press **[return],** but simply carry on typing.

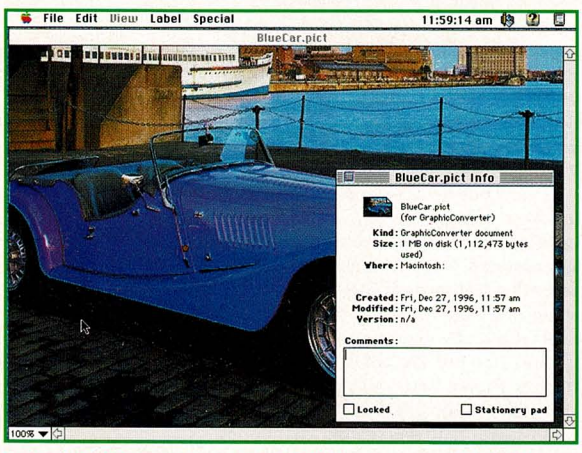
Giving your Mac a set of commands using AppleScript can save mountains of time, but the key to cracking really laborious jobs is to make your script think for itself. Unfortunately, Macs with real common sense still lie just in the realms of science fiction, but today's machines are spectacularly good at making *logical* decisions. In other words AppleScript can't make your Mac look through a stack of image files and decide whether they are intrinsically worth backing up, but you can tell it to copy all files with a certain label, which could amount to roughly the same thing.

Decisions can benefit your scripts in all sorts of practical ways: is a file big enough to warrant compression, or is a key word contained within a word processed document? You get the idea.

What If?

When you can combine automation with decision-making, you start to get some seriously powerful and labour-saving scripts – you are also a sizeable step closer to being able to tackle any task with the help of AppleScript.

Ready? Good, because the backup script you created last month could benefit from two choice decisions...



Logical decisions make scripts infinitely more powerful: is this image recent enough to be backed up, does the chosen label mean it's important? The possibilities are endless.

As you've probably discovered, the backup script produces an error if it comes across a folder, so an obvious decision to make is whether or not the current item in the list is a folder – if it's not, then it's safe to copy it.

But before you go making any rash decisions, you have to find out what the item is in the first place; and to do that you look at its properties. Every AppleScript object has properties, and when you're talking about a Finder "item", you can get the size, the label, the date it was last modified and all sorts of other information. The one we are interested in right now is the **kind** property; it gives the same information that you'd find if you clicked on a document and chose **Get Info** from the **File** menu. The following line, when addressing the Finder, puts the **kind** of the System Folder into a new variable called **kindVar**.

```
copy kind of item "System Folder" of ¬
startup disk to kindVar
```

The result is that **kindVar** contains "folder" – if you were to look at the **kind** property of a *SimpleText* file, you would get "*SimpleText* document". You'll notice that **item** is used instead of **file** or **folder** in the above example, because it saves you having to be specific – usually

Up and over!

Our new and improved backup script can now cope with folders, but it still produces an error if it comes across a conflict (a file with the same name as you are trying to copy is already there). In some ways this is a protection because it's hard to do any damage without overwriting files. But, if you are confident that you are going to select your source and destination folders carefully, replace the actual copy file command with the following:

```
duplicate file currentFile of ¬
folderChosen to folder copyDestination ¬
replacing existing items
```

The above line uses the duplicate command, which is considerably more powerful than copy, because it enables you to specify whether you want to replace existing files. There is no warning, though – existing files with the same name are overwritten.

when you're inquiring about an object's **kind,** you don't know whether it's a folder. In these cases, use **item**.

It's easy to make a decision based on the **kind** property – the key is the **if** statement. Load last month's script into the *Script Editor* (it's included on the CD) and add the following lines around the **copy** command, so that it looks like this:

```
if kind of item currentFile of folderChosen ¬
is not "folder" then
    copy file currentFile of folderChosen to ¬
    folder copyDestination
end if
```

As you've probably guessed, the above snippet decides whether an object is a folder or not. The copy command is only run if the current item *is not* a folder. The condition is then finished with **end if,** and you can put any number of commands in between. To see it working, press the **Check Syntax** button to make sure there aren't any major typing errors and then click **Run**. The script works in exactly the same way as it did last month, but the actual file-copying procedure ignores folders.

What's the label?

You can even use more than one **if** to make a decision – it would be handy if the backup script could pick out files with a certain label (hand-marked using the **Label** menu in the Finder).

To do that, another object property called **label index** comes into play. It works in exactly the same way as **kind**, but returns a number between 0 and 7 (0 for no label, 1 for the first and so on, counting down the menu in the Finder). Here, you change the script to read:

```
if kind of item currentFile of folderChosen ¬
is not "folder" then
    if label index of item currentFile of ¬
    folderChosen is 7 then
        copy file currentFile of folderChosen ¬
        to folder copyDestination
    end if
end if
```

The command performance...

Here are the commands used in this month's tutorial:

if <logical operator> then
– A true if statement will run the commands held here.
end if

***If* is a control statement that enables a script to make a logical decision. This month, we've used the *is* and *is not* operators.**

duplicate file <source> to folder <destination> [replacing existing items]

***Duplicate file* copies an object from <source> to <destination>. You have the option to overwrite, by adding *replacing existing items* to the end.**

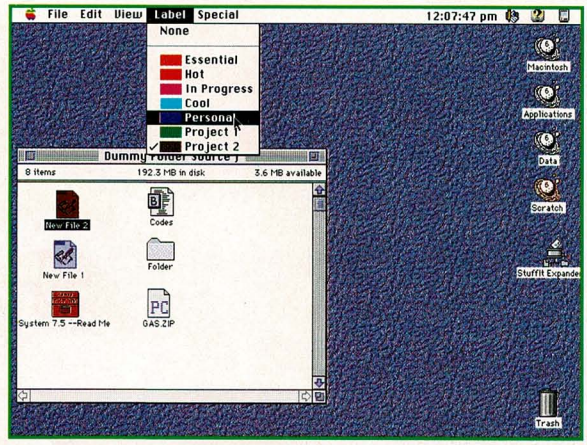
This is slightly more complex because there's a decision within a decision. It works like this:

- The first **if** decides whether the item is a folder. If it *is* a folder, then all commands until the relevant **end if** (the "outside" one) are skipped for this pass through the loop. If it *isn't* a folder, then the commands in between are run, so you arrive at the next decision.
- If the **label index** is 7 (the last entry in the **Finder's Label** menu), then the command contained within the **if** and **end if** is run. Otherwise, it's ignored.
- Having slid successfully through both of the **if** conditions, your script knows that the item **(currentFile)** isn't a folder and has the right label, so it's copied using the **duplicate** command. You'll notice how the indents highlight which decision affects which commands.

The script is just about finished for this month, so choose **Save As** from the **File** menu, select **Compiled Script** from the pop-up menu and type "MACFORMAT Backup 2" into the name box. You can now run your script with a simple double-click from the **Finder!**

At last, the backup script is starting to save some real time. It's automated and intelligent, avoiding folders and automatically searching out files with a certain label. And now you know how to make this decision, you can add others quite easily – don't be afraid to explore the Finder's dictionary (see the "Perfect Diction" box below) for more ideas. Just remember to test your scripts on unimportant files until you are quite certain they work properly.

This small example should give you some idea of the power of AppleScript, and how useful it can be to teach your Mac new tricks. But we haven't yet exploited its chief advantage: working with more than one application. Next issue we'll tackle that problem by extending our script to compress the files we've chosen to back up using a "scriptable" compression program, *Stuffit Lite*. **MF**



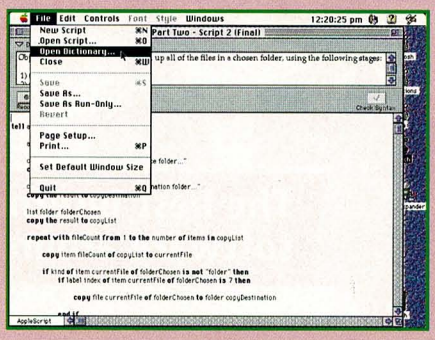
Give your files labels. This makes it easy for AppleScript to sort files from within a script, using the label index property.

Take care!

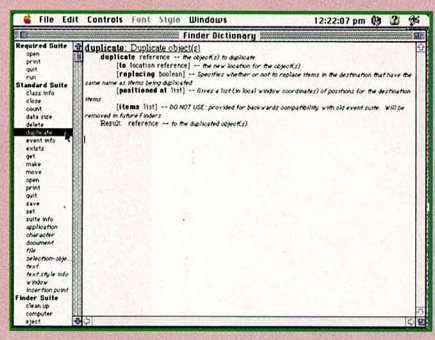
AppleScript can delete, move and overwrite files without telling you – a bit of a shock when you're used to the Finder's habit of warning you about everthing. Use scripts with care, and make sure you know what they're going to do before you let them do it!

Perfect diction...

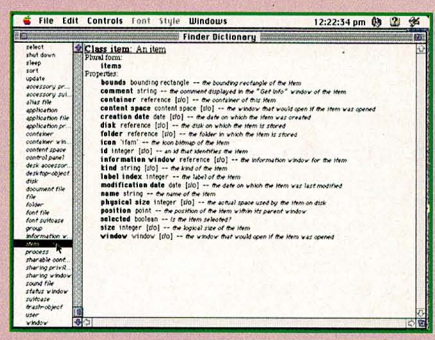
Every scriptable application has its own dictionary of commands. To look up the commands and properties used this month, follow these steps...



1 Run the *Script Editor* and choose Open Dictionary from the File menu. Navigate your way to the System Folder and then double-click on the Finder icon to open its dictionary.



2 Click on duplicate under the Standard Suite heading. You'll then see the command outlined. The parts in square brackets are optional – use them if you need them.



3 Click on item under the Finder Suite heading (object types are listed in italics). This shows the object's properties, among them label index and kind, as used in our script.

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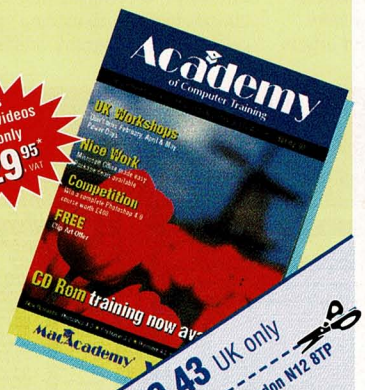

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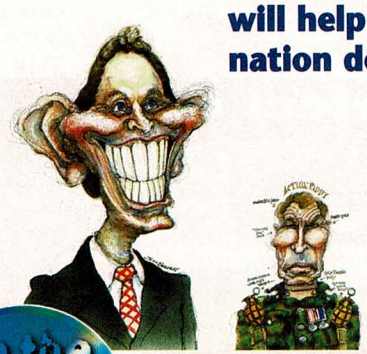

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QuickTime Music

The hills are alive with the sound of QuickTime Music... QuickTime guru Jonathan Ferman shows you how QuickTime Music Architecture can cram an entire orchestra into your Macintosh...

Did you know that sitting inside every Macintosh is a small orchestra just bursting to get out? This source of musical wonder is QuickTime, Apple's multimedia technology that enables you to watch video, play sounds and even view graphics files.

Specifically, the music element of QuickTime is known as the QuickTime Music Architecture (QTMA) and comes from the QuickTime Musical Instruments System Extension. If this Extension is not installed, you won't hear a whimper out of the orchestra.

The QuickTime Music Architecture is more to do with the playback and editing of music than its creation. However, with QuickTime 2.5 and the new **QuickTime Settings** Control Panel, Apple has made it easier to attach a music keyboard to your Mac and turn these musical inputs into QuickTime.

The quality of QuickTime music has been improved significantly with the introduction of QuickTime 2.5. Apple states that on PowerMacs you can now listen to QuickTime music in 16-bit stereo, at 44.1 KHz – which is equivalent to audio CD quality. The output is also a lot louder. But if you're not particularly musical and consider it an accomplishment to play an audio CD, never mind a musical instrument, your experience with QuickTime Music Architecture may begin with someone else's work, whether it's Bach, Beethoven or Black Sabbath. You can get ready-made music files, which generally come in the form of MIDI Files. "MIDI" stands for Musical Instrument Digital Interface, and it's a type of communications protocol for music keyboards. In this instance we are looking at MIDI as the way that a music keyboard communicates with your Mac and vice versa. If you're interested in the ins and outs of MIDI (sorry, bad joke) there are a number of excellent Web sites that can tell you more about it. A good place to start is **http://www.eeb.ele.tue.nl/midi/index.html**.

Custom instruments

QuickTime currently supports about 40 instruments, licensed from Roland, the electronic instrument manufacturer. There are plans to increase the number of instruments supported by over three times, using instruments either from Apple or a third party company. Whether or not you're particularly interested in that potential development, QuickTime 2.5 offers something far more impressive – the ability to use any instrument of your own creation. But you'll need a few things first.

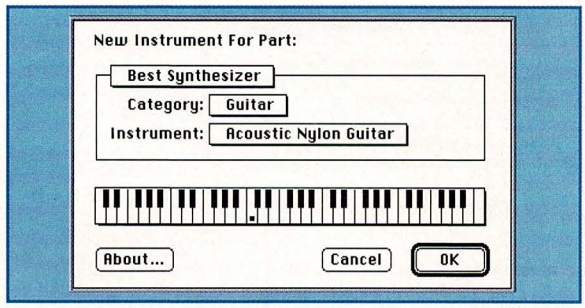
We'll assume you already have a Mac or a Mac clone. You must also have installed QuickTime 2.5 or later (there are no excuses because QuickTime 2.5 is on the Cover CD). You must make sure that you've installed the **QuickTime Musical Instruments** Extension (it is part of the standard QuickTime 2.5 installation).

You'll also need to be able to play QuickTime Music files, and perhaps the best application for this is Apple's own *MoviePlayer*. If you're not familiar with *MoviePlayer* you may want to refer to the "How to" article on *MoviePlayer* in MACFORMAT 48. *MoviePlayer 2.5* is also part of the installation for QuickTime 2.5 and is put in the QuickTime Folder.

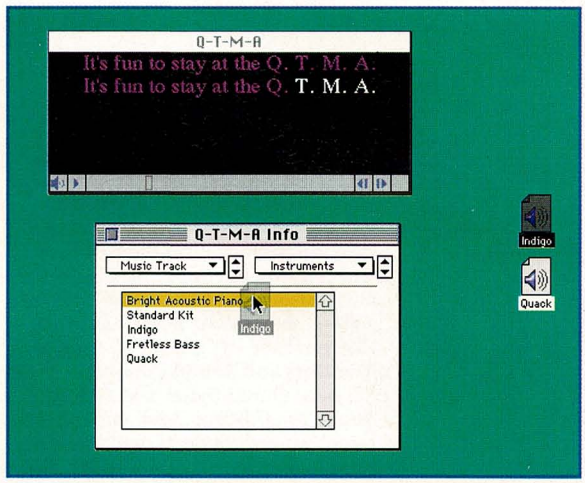
Now, in order to be able to change instruments within a music file you must have the **Authoring Extras** *MoviePlayer* plug-in in the same folder as *MoviePlayer*. You'll find all the current plug-ins for *MoviePlayer 2.5* on the MACFORMAT 48 Cover CD. If you have already installed *MoviePlayer 2.5*, you can simply copy the *MoviePlayer* plug-ins from the CD to the folder on your hard disk that contains *MoviePlayer*, usually the QuickTime Folder unless you've moved it.

Once you've set up *MoviePlayer* with the **Authoring Extras** plug-in, it's time to get some sounds to use as your custom instruments. To make your own sounds you'll need to get a microphone, if you don't already have one supplied.

Several Macs including the Performa 5200, 5300 and 5400 series, and the PowerBook 500, 5300 and 1400 series have the microphone built-in. There are many more models that come with microphones, but typically PowerMacs and various other PowerPC-based Macs don't come with microphones. For these models you will need a PlainTalk microphone or a similar self-amplified microphone to record sounds. A PlainTalk microphone should be around £15 or less and will also give you the opportunity to control your Mac using Speech Recognition (if you install the necessary ➤

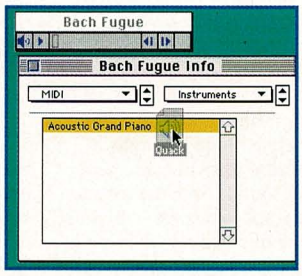


You can change the instruments used in a music file by double-clicking on the instruments listed in the Get Info window – you will need the Authoring Extras plug-in to do this, though.



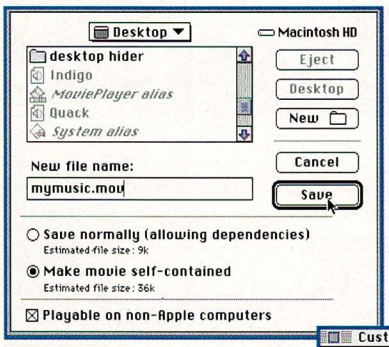
You can even change instruments used in karaoke files...

Want to change the instruments used in a music file? Open the file with *Movie Player* and choose Get Info...



In *Movie Player*'s Get Info window you can simply drag System sounds onto existing instruments to replace them.

The full version of QuickTime 2.5 can be found in the **Resources** folder.



Once you've changed the instruments in a music file, you can save it as a QuickTime movie. The Save As... command also gives you the option of making the movie self-contained and playable on other non-Mac computers.

Customised overture Info
Customised overture
Kind: MoviePlayer document
Size: 76.1 MB on disk (79,822,164 bytes used)
Where: Macintosh HD:
Created: Tue, Feb 4, 1997, 11:51 PM
Modified: Tue, Feb 4, 1997, 11:52 PM
Version: n/a
Comments:
A music file converted to AIFF format went from 96K as a QuickTime movie to over 76MB!!!
Locked
Stationery pad

Music files can be exported, but look out for huge file sizes. This file went from under 100K to over 76Mb, and all because 16-bit and 44.1KHz sample rate was selected in the Options window.

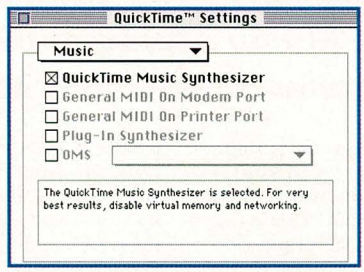
software and your Mac meets all the hardware requirements).

Sounds easy

Once you've inserted the microphone into the microphone port you'll need to tell your Mac that it has a microphone attached. You can do this via the **Sound** or **Monitors and Sound** Control Panel. (Which one you use depends on what Mac you have – PCI-based Macs use the **Monitors and Sound** Control Panel.) In the same Control Panel, select **Alert Sounds** and click on **Add**. You can then record your own sounds (which can also serve as alert sounds, if you want). The important thing to remember is to keep your sound short. If you make it longer than one second, say, QuickTime will not usually play it all. The part of the sound you generally hear is the first split second, which is played at various different pitches to simulate the different notes of a musical instrument.

The Alert Sounds are stored in the System file (in the System Folder), which contains all of the System sounds. These System sounds can't be used with QTMA when they are in the System file, so you need to drag them out of that file, and the best place to put them for the time being is on the Desktop.

Once you've found the System file, double-click it and you'll see all the files it contains. If you've recorded several new System sounds and you want to continue experimenting with them it may be simpler to make an alias of the System file (select the file with the mouse and press **[command] A**) and put the alias on the Desktop.


QuickTime™ Settings
Music
QuickTime Music Synthesizer
General MIDI On Modem Port
General MIDI On Printer Port
Plug-In Synthesizer
OMS
The QuickTime Music Synthesizer is selected. For very best results, disable virtual memory and networking.

The QuickTime Settings Control Panel helps in connecting your Mac to music keyboards. If you don't have one, it uses the QuickTime music synthesizer.

Of course if you move the sounds that you want to use onto the Desktop from the System file, they can no longer be used as System sounds. Therefore, you may want to use a copy of them – to do this you hold down the **[option]** key (sometimes called the **[alt]** key) while you drag the sounds to the Desktop. If all this seems a bit cumbersome, an alternative is to produce sounds using Apple's *SimpleSound*, an application which is to sound what *SimpleText* is to text. It's simple yet effective, but it's not supplied as standard with Macs – yet. It should be included with System 7.6.

Once you've decided what sounds you would like to use as custom instruments and have them ready on the Desktop, you'll need a music file. The Internet is a good place to look for these – see the "Web sites" box to the left.

Just drag and drop MIDI files over the *MoviePlayer* icon and they will be translated into a format that QuickTime can interpret, edit and play.

To open the music file you can just drag and drop it onto the *MoviePlayer* icon. If it's a MIDI file, QuickTime will translate it into a format it can understand. The final stage is to change the instruments within the music file. Once you've opened the file in *MoviePlayer*, go to the **Movie** menu on the menu bar and select **Get Info**.

In the **Get Info** window, select the Music or MIDI track (depending on what type of file it is), from the **Movie** menu. In the pull-down menu on the right, select **Instruments**. Now just drag and drop the System sounds over the instruments that you want to change – the instruments will be highlighted when you drag a sound over them. This can sometimes be a bit fiddly but just be persistent.

When you are happy with the new sound of the music file it's time to save it. Probably the best thing to do is to choose **Save As...** from the **File** menu. This will create a new file with your new instruments, leaving the original file intact. Your new enhanced music file can then be put on the Internet – but be aware that by law you must not distribute music in any form, including MIDI Files, or incorporate it into your work, without the permission of the copyright owner, so don't think of distributing "doctored" versions of pop songs or other commercial recordings.

Karaoke

Thanks to Apple's QuickTime Music Architecture and QuickTime 2.5's support for text tracks, you can now sing along to karaoke classics on your Mac. (In case you're interested, karaoke was invented in Japan and translates as "empty orchestra".) Now, thankfully, you can practise your pub-singing skills in private. We haven't been able to bring you any karaoke files on the Cover CD to try out because of copyright restrictions (you're not allowed to distribute *any* versions of songs without the copyright owner's go-ahead, remember), but there are lots of them on the World Wide Web. Just search for ".kar" files (the suffix for the karaoke file type).

Since karaoke files are really only music files with a synchronised text track, it's easy to change the instruments – simply follow the procedure described earlier on. The potential is amazing. Imagine singing along to the Queen classic "Bohemian Rhapsody" but changing all the instruments to the Quack sound – it would give you a kind of duck symphony... Well, at least you wouldn't have to worry about forgetting the words. Karaoke is very strange and very sad but great fun.

Music on the Internet

Since MIDI files tend to be very small, there has been something of a resurgence in MIDI on the World Wide Web. Some Web pages play music while you view them, making the Web a far richer multimedia experience.

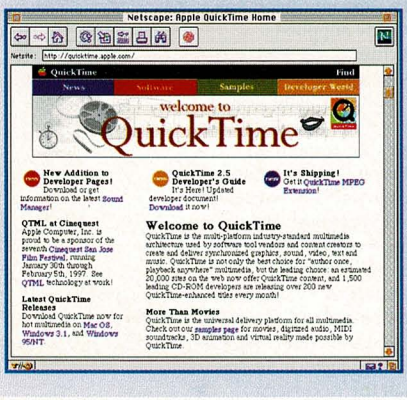
Indeed, Apple has produced a QuickTime plug-in which will work in the current versions of *Netscape Navigator* and Microsoft's *Internet Explorer*. So next issue in MACFORMAT we'll take a look at how to integrate QuickTime content with Web pages... **MF**

Web sites to visit

To find out more about the QuickTime Music Architecture, visit the following Web pages:

■ http://www.srm.com:80/qtma/
All you want to know about QTMA, by one of Apple's "music architects", David Van Brink.

■ http://www.aitech.ac.jp/~ckelly/mmuig2.html
■ http://www.open.org/peltierd/index.html
Two sites where you can get hold of more MIDI File samples, as well as further tips on getting the most out of QuickTime music.



You'll find the official Apple QuickTime Web site at http://quicktime.apple.com but the other sites described in this box will give you even more background information.

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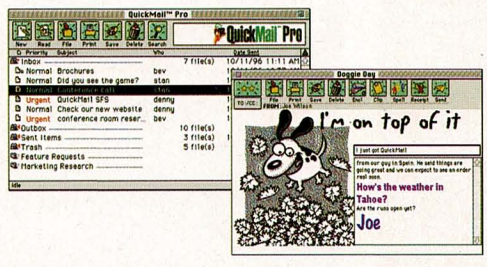

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Maybe not today, maybe not tomorrow... but some day, your Mac may cause you problems. Don't fret! Lindsay Bruce is on hand to help you out...

Where would you be without your Mac? Well, probably somewhat richer and with more friends, but we mean where would your work be without your Mac? That happy little computer revolutionised print and publishing, image retouching and graphics, sound and video. Even if you only type the odd letter, the Mac is a godsend – time-saving, productive and fun to use. Soon you wonder what your life would be like without it.

Well, you'll probably find out soon enough. Every Mac crashes, every Mac will lose data, and every Mac will one day fail to start up. This is why MacAnswers exists – to help you solve problems when they happen, and help prevent them in the first place. Prevention is better than cure, so even if your Mac is working fine, it never hurts to read up on problem-solving and be prepared.

If you have a Mac problem, fill in the form on page 75 and send it to MacAnswers, MACFORMAT, 30 Monmouth Street, Bath BA1 2BW, e-mail us at **macformat@futurenet.co.uk** or fax us on 01225 446619. Sorry, but we can't reply to technical questions personally because we're still trying to get our editor's new PowerMac to work...

On-line help

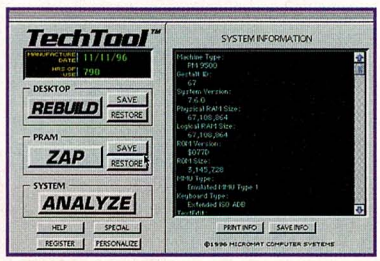
Apple has set up technical discussion forums on the World Wide Web for those experiencing problems with their Macs. The forums are attended by Apple engineers and support staff as well as Mac users. Forums range from desktop Macs, portables, Newtons, and servers and networking, and you can access them on the Web at **http://support.info.apple.com/tso/tso-home.html./**

"Why are we waiting...?"

Slow startup

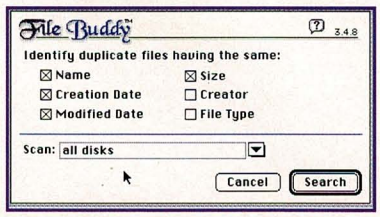
Q *I have an LC III and recently it has been taking a long time to start up. It just sits there and does nothing, until after a minute or so I get the happy Mac icon and it starts up normally. I've tried re-installing the System and running Norton Utilities, but the problem persists.*

S Morten, Arbroath



With *TechTool*, on our Cover CD, you can rebuild the Desktop, zap the PRAM, and gain valuable information about your Mac's hardware.

A This is most likely to be corrupted data in the PRAM (Parameter RAM), a section of battery-powered memory that stores the date, time, certain Control Panel settings, and the location of the start-up disk. One of the items it holds is a delay time that your Mac should wait before accessing the internal hard disk. This ensures that there's enough time for the disk to spin up and get to operating speed before the Mac tries to read data from it. It may be that the PRAM has got corrupted and the Mac is waiting an abnormally long time



***File Buddy* is one of the handiest utilities you'll ever find. It will search for duplicated, unused or corrupted files, folders and aliases – and it's on the Cover CD.**

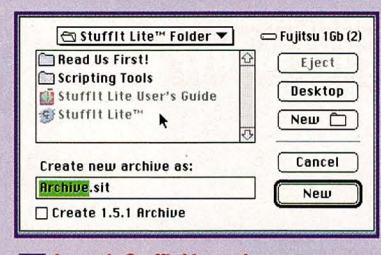
Backing up

Q I am new to Macs and have been given a Performa 520. I've heard that it comes with a program called *Apple Backup* for backing up the contents of the hard drive, but I can't find it. Where is it?

Dave Bridge, Hants

A The Performa 520 (otherwise known as the LC 520) was very much the forerunner for today's Performas (it was the first of the larger all-in-one designs), but it was never released in the UK. It made it to the shores of the US and Japan, but never good old Blighty.

***Apple Backup* is a handy utility that will back up the entire contents of your hard disk – all you have to do is feed it floppy disks. The down side is that you can't ask it to back up specific files – it's all or nothing. This is why it usually only comes with Performas. Depending on the model of your Performa and when you bought it, you should find Apple Backup in one of two places – on your internal hard disk, or on the System CD that came with your computer. Older Performas didn't come with System CDs or even a set of floppy disks, so we suspect that Apple Backup should be on your hard disk. We say should because since you got the computer second-hand, it may have been trashed or moved by the previous owner. Try using the Find command under the Apple menu to locate the application. If it's not found and you don't have any disks that came with the Mac, then I'm afraid you'll have to back it up manually. This will require a good number of floppy disks and a tremendous amount of patience. A compression program such as *Stuffit Lite* (which you'll find in the Resources folder on the Cover CD) will help you by packing up to 75% more data onto a floppy .**



1 Launch *Stuffit Lite* and create a new archive by selecting New under the File menu. The program will ask you where you want to save this new archive.

before accessing the hard disk. To solve the problem, you need to zap (clear) the PRAM by holding down **[command] [option] [shift] P R** at startup, or by using *TechTool* (on the Cover CD). Once the Mac has restarted, you'll need to reset the date and time as well as some Control Panel settings such as monitor resolution and colour depth, as your Mac will revert to its default factory settings.

Lost in space

File tracking

Q *Is there a cheap freeware/shareware utility that runs through the entire Mac and finds copies of identical files and applications, and then enables you to view them with the further capability of deleting the unwanted files? I must have at least a hundred different version of the same files, and I would dearly love to recover some of that space! It would be wonderful if this feature was built into System 8.0!*

Allie Taylor, via e-mail

A On the Cover CD you'll find *File Buddy*, a shareware file management program with a host of features that includes a duplicated items search. *File Buddy* will not only compare file names, but file sizes and types as well, to make such it's an exact duplicate. It will also search for invisible files, unlinked or corrupted aliases, outdated preferences files, and empty files and folders.

If you are having trouble keeping tack of your files, why not catalogue them? Yet another program on the Cover CD called *Disk Wizard* will catalogue disks for you so that you can find any file at click of the mouse. *Disk Wizard* is inside the **Resources** folder, and we've included catalogues of all the MACFORMAT Cover CDs to date.

Actua RAM – not!

Game sprockets

Q *After running* Actua Soccer, *which uses Apple's Game Sprockets, I find that I have lost 10Mb of RAM. Although this is sorted by a restart, this is a time-consuming and irritating process. I suspect that the Game Sprocket libraries are not removed from the System heap when the game quits. Is there a way to get this RAM back?*

Peter Davies, via e-mail

A You are perfectly correct, it is indeed the Game Sprockets that are to blame here. Apple's Game Sprockets are shared libraries (a type of Extension) that provide games developers with ready-made software components to deal with common functions, such as user input via keyboard or mouse, playing sounds, and even displaying some graphics. This means the developer has less programming to do, the game takes up less space on your Mac, and it's more compatible with existing software.

The problem you've described is not a bug, but a deliberate feature. All shared libraries – including Game Sprockets – are loaded into memory not at startup like ordinary Extensions, but when they are needed by an application. However, they are not removed from memory once the application has quit. The reason is that you may run an application immediately afterwards that needs the same shared libraries. The idea is to make applications load faster.

The memory used by libraries is not locked like the rest of the System heap (the portion of memory used by the operating system), though, and is given over to applications when needed. You should find that your 10Mb of memory is reclaimed as soon as you run another application. If it isn't, then the memory isn't being freed up and it needs some persuasion. *MacOS Purge* (also on the Cover CD) is a handy little utility that recovers RAM by dumping any unused libraries from the System heap. Simply run this after you've quit *Actua Soccer* and you should find your 10Mb is free for use again.

Many new games, such as *Actua Soccer* above, are using Apple's Game Sprockets technology which simplifies and speeds up game development. Pity they hog memory...

SIMM-ple solution

RAM and FPU

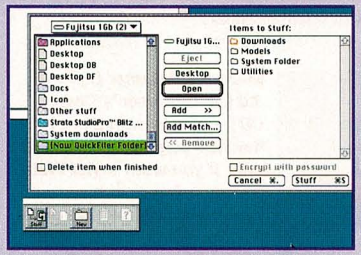
Q *1. I have a Performa 5300 with 16Mb of RAM. Does my Mac use SIMMs or DIMMs, and can I add another 16Mb of RAM to it?*

2. Why do a lot of the applications I run ➤

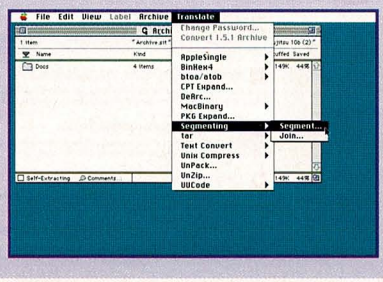
Trouble-Shooting keystrokes

Having a few keystrokes up your sleeve is incredibly handy when you run into trouble, and it makes you look dead flash in front of all your mates in the office. Ahem... yes.

Startup keystrokes – hold down during Startup
[shift] Turns Extensions off.
[command] [option] Rebuilds the Desktop files.
[command] [option] [shift] [delete] Forces your Mac to start up from a disk other than the internal hard drive (assuming you have another disk with a System Folder on it).
[command] [option] P R Zaps the PRAM (Parameter RAM – a chip inside your Mac which stores the date, time and some details about your Mac's hardware).
[command] [option] T V Switches your Mac's screen display from the monitor to a connected television set (Audio Visual Macs only).

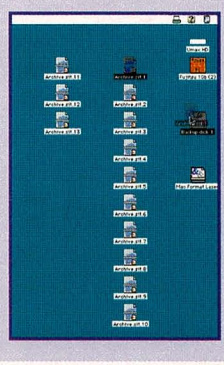


2 **Click on the Stuff icon in the floating palette to add folders and files to the archive. When you've finished your selection, click the Stuff button and the program will compress the files.**



3 **If your archive is too big to fit on a single floppy, you can segment it into smaller individual parts. Do this by selecting Segment under the Translate menu.**

4 **Select the archive and size of disk you wish to copy the segmented archive onto. A check box option enables you to make it a self-extracting archive, which takes up a little more space, but you won't need the program to decompress it.**



5 **Once *Stuffit* has segmented the archive, all you need to do is copy the individual parts onto floppy disks. Remember to name the floppies in sequential order so you know which ones to insert when!**

It's wise to make all your backups self-extracting archives (.sea) in case your Mac's hard disk dies and you have to completely re-format it. In this case, you may not have the *Stuffit* application to decompress your archives again. Self-extracting archives have a decompression program attached to them, so you don't need the original program to do the job.

Professional help

Every month we receive many letters, e-mails, faxes and phone calls asking for help with a Mac technical problem. Unfortunately, we can't answer them all – it's all we can do to produce the magazine on time. If you're having a hardware problem with your Mac, try calling the Apple Assistance Centre on 0990 127753. If it's a problem with a particular piece of software (commercial or shareware), you'll need to get in touch with the software company or distributor – bear in mind that they'll probably only help if you have registered the software.

(Photoshop *for example) tell me that I don't have a built-in FPU (Floating Point Unit) when I know my Performa does? I have to resort to using* SoftwareFPU *but this is much slower than the built-in FPU. How can I solve this problem?*
Blair Robertson, Edinburgh

A 1. Your Performa 5300 uses SIMMs (Single In-line Memory Modules) and not the newer DIMMs (Dual In-line Memory Modules) found in PCI Power-Macs and the newer 5400 and 6400 series Performas.

The Performa 5300 has two SIMM slots, one of which comes with either an 8Mb or a 16Mb SIMM installed, and you can fit a second 16Mb SIMM quite easily. For more details on how to upgrade your Mac's RAM and power, turn to our RAM upgrade feature on page 52.

2. Yes, your Performa does have an FPU – it's built in to the PowerPC processor at the heart of your Mac. The most likely reason for these messages is that you are running older, non-PowerMac-native software. To fix the problem, get hold of a PowerMac-native version of the software – it will run two to three times faster than 68K software. If this isn't possible for all your programs, try the latest version of *SoftwareFPU* (it's on the Cover CD inside the **Resources** folder). This can coerce many older programs into running – but, yes, probably more slowly than they'd run on a 68040 Mac.

Like many Performas, the 5300 has somewhat limited upgrade options – but you can fit up to 64Mb of RAM via the two 72-pin SIMM sockets. For the full low-down on your Mac, *whatever* model it is, see *GURU*, the complete Guide to RAM Upgrades, on this issue's Cover CD and floppy disk.

Goldfish memory

PRAM settings

Q *I am running a PowerMac 8100 with System 7.5.3 and a 2.1Gb internal hard drive. If I check the* ***Wastebasket warning*** *in the* ***General Controls Panel*** *and set folders to* ***Always snap to grid*** *in the* ***Views Control Panel****, they work until I restart, when they default back to the original settings. I thought it might be the PRAM battery, but all my other settings are fine and the date and time are correct. I've tried rebuilding the Desktop, trashing various Preference files, and using* TechTool *– ideas?*
Paul Sagar, via e-mail

A This is a bug present in System 7.5.3 that seems to affect a number of Macs – we've had similar problems in the MACFORMAT office. System 7.6 – due any day now – fixes this problem. In the meantime, you could try a couple of tricks to get it to work. Try trashing the **Finder Preferences** file in the Preferences Folder within the System Folder and restarting your Mac, then reset your **Views** and **General Controls** preferences. Failing that, try performing a clean install of the System software from your original System disks – this is done by holding down **[command] [shift]** and **K** at the Options screen in the installer.

68K Internet blues

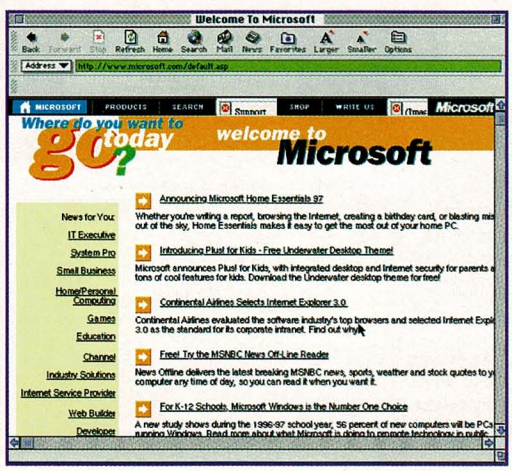
Surfing the net

Q *1. I have a Performa 475 with 12Mb of RAM, System 7.5.3, a 28.8Kbps modem, and Microsoft Internet Explorer 3.0b. I have ClarisWorks 2.1 and find that I can't open many documents on Cover CDs because they have been made with a later version of ClarisWorks. Is there any update or utility that will enable me to open these files?*
2. Will a newer, more powerful Mac result in better Internet access? There are times when my Mac seems unable to load some pages and it regularly freezes. Is it my modest machine or the Internet itself causing these problems?
Andy Frazer, via e-mail

A 1. There is no upgrade (other than buying the latest version) for *ClarisWorks 2.1* that will enable it to read later file formats. However, a demo version of *ClarisWorks 4.0* was on the MACFORMAT 45 Cover CD. This will enable you to open any *ClarisWorks* files, but not to save any changes. For a longer term solution, either upgrade your version of *ClarisWorks* to version 4.0, or use a word processor that can open *ClarisWorks* files. *BBEdit* (on MACFORMAT 39's Cover CD) will open text files quite successfully, but not *Claris's* drawing, painting, database or spreadsheet files. For these, you'll need the latest version of *ClarisWorks* – around £115 from all Mac resellers. For more details contact Claris UK on 0181 756 0101.

2. Your problem with the Internet may be a combination of your Mac, the browser you're using, and the inherent nature of on-line surfing. First, your Mac is running System 7.5.3 on a meagre (by today's standards) 12Mb of RAM. System 7.5.3 is, well, a little buggy, shall we say, and you should upgrade to either 7.5.3 Revision 2 or 7.5.5, which is available on this issue's Cover CD (see page 13), or wait for System 7.6, which should be out by the time you read this. System 7.6 is expected to cost around £60. For more details of this you can contact Apple UK on 0800 127753.

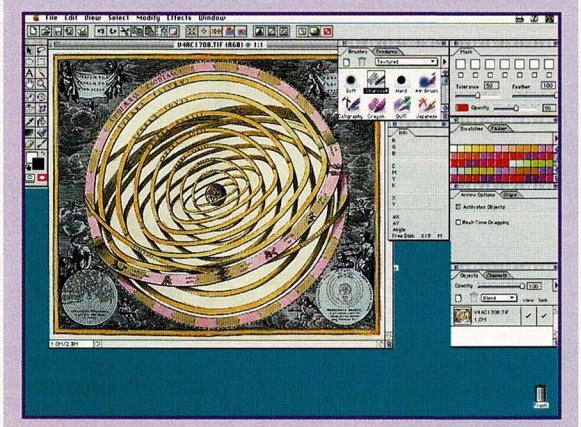
Secondly, the version of Microsoft


Welcome To Microsoft
Where do you want to go today?
welcome to Microsoft
Announcing Microsoft Home Essentials 97
Introducing Plus! for Kids - Free Underwater Desktop Theme!
Continental Airlines Selects Internet Explorer 3.0
Free! Try the MSNBC News Off-Line Reader
For K-12 Schools, Microsoft Windows is the Number One Choice

Microsoft *Internet Explorer 3.0* (on this issue's Cover CD) – nice browser, but the finished version is PowerMac only. If you want to get Web-surfing using a non-PowerMac, try the earlier version of *Internet Explorer* on the MACFORMAT 46 Cover CD... or use *Netscape*.

xRes 2.0 SE

On MACFORMAT 47 we gave away the image editing package *xRes 2.0 SE* on a second Cover CD. We've had a number of calls saying that the program asks for a serial number when you try running it. You'll find the serial number in a document called "Important!" inside the xRes folder on the CD. Type this in, and enjoy many happy hours of retouching friends' and colleagues' faces.



***xRes 2.0 SE* is a very powerful and fast image editing program, and it was yours free with MACFORMAT 47. Just remember to put the serial number in...**

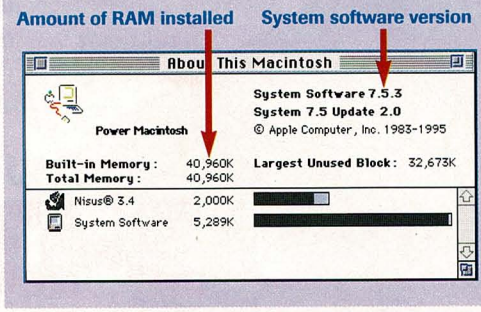
Infopedia

In MACFORMAT 44, we gave you the multimedia encyclopedia *Infopedia*. Since then, some readers have reported problems with installing and printing from the program. Part of the problem is that *Infopedia* is not PowerMac-native, and runs under 68K emulation on PowerPC based machines.

The Learning Company, who produce *Infopedia*, say that this and "Extension conflicts" are the most likely cause of problems. They recommend you upgrade to System 7.5.5 and disable any non-Apple Extensions and Control Panels. Do this using the Extensions Manager Control Panel in System 7.5 and above.

The do-it-yourself problem-solving guide...

One of the most common causes of problems on your Mac is Extensions or Control Panels clashing in your System Folder. It's easy to check if this is the case. Restart your Mac and hold down the [shift] key. Release the key when you get the message, "Welcome to Macintosh. Extensions off." If everything now works, then the problem is likely to be an Extensions conflict.



The only way to work out which item is the culprit is by trial and error. Remove a few Extensions or Control Panels, then restart your Mac, without holding down [shift]. Keep on doing this until the problem no longer occurs and you've found the offending software.

If this doesn't work, try rebuilding your Desktop. Start up your Mac holding down [command] and [option]. You'll get a message asking if you want to rebuild the Desktop. Click OK, wait for it to finish and see if this works.

If you're still stuck, use the form below to write to us. We'll need to know a few facts about your Mac, so when you're in the Finder, select About This Macintosh from the Apple Menu – the crucial things to note are shown at left.

Internet Explorer you're running is a beta (test) version. The finished version of *Internet Explorer* is on this issue's Cover CD, but this is PowerMac only and won't run on a Performa 475. Either you stick with the beta version of *Internet Explorer*, or try *Netscape Navigator 3.0.1*, which will run on your Mac. *Netscape Navigator 3.0.1* is available for download at **http://www.netscape.com/comprod/mirror/client_download.html/** – but bear in mind that it's a commercial product, so before you use it, you should first register on-line.

As for Web surfing in general, even with a 28.8Kbps modem you're unlikely to get transfer rates over 5K per second, and even this is pretty good. Buying a faster Mac will not mean faster download rates since the bottleneck is your modem (note that modem speeds are given in bits per second, not bytes).

To give you a rough idea of how much information a modem can transfer per second, divide its speed by eight – this will give you its theoretical throughput (the amount of data that can be transferred in a specific amount of time) in bytes. A 28.8kps modem will give you around 3.5K per second in theory, although due to compression techniques, transfer rates of 6K are possible but very rare. Lastly (as if the whole world wasn't conspiring against you anyway), the Internet is a very busy place (more Information B-Road than Information Superhighway). Because of this, you'll often find that you are competing against hundreds of other users for access to sites – and this inevitably slows down the transfer of data to your Mac. It's best to log on to most sites either early in the morning or late at night when the Web is not quite as congested (America wakes up at noon UK time). **MF**

Ask MacAnswers...

If you send in a question for the MACFORMAT experts to solve, please fill in and include this form (or a copy of it). And please make sure that you include all the relevant details – version numbers of software and so on – so that we have the best chance of helping you. Send your form and question to: MacAnswers, MACFORMAT, 30 Monmouth Street, Bath BA1 2BW; or fax it to us on 01225 446019.

Name .....

Address .....

.....

.....

.....

.....

Your Mac
(For example, Performa 475, 7600/120, PowerBook 5300):

.....

System version
(see **About This Macintosh** screenshot on page 63): .....

Amount of RAM
(see **About This Macintosh** screenshot on page 63): .....

Are you using Virtual Memory? ..... **YES/NO**
(This is accessed from the Memory Control Panel under System 7)

Do you have 32-bit addressing or Modern Memory Manager (PowerMacs only) turned on? ..... **YES/NO**
(This is accessed from the Memory Control Panel under System 7)

Details of any relevant hardware which could help us to answer your question:

.....

.....

Now, use this space to describe your problem or question. Please include as much relevant information as possible, and continue on a separate sheet if necessary.

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See Windows PLUS opinion below..

Put to the test.. WINDOWS November 96 ISSUE PLUS

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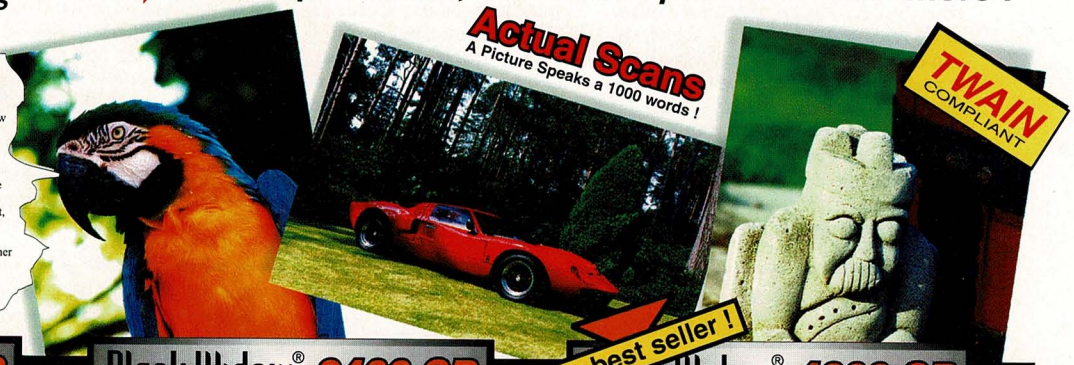

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Authoritative tests of products from graphics packages to multimedia and games.

Reviews

Reviewed this issue

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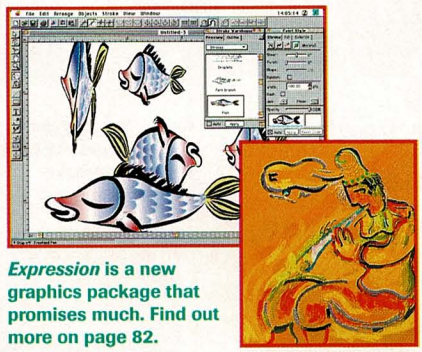
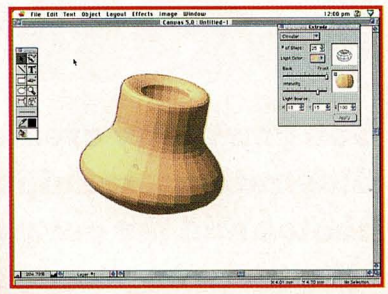
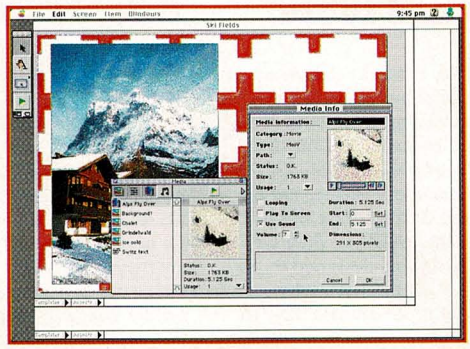


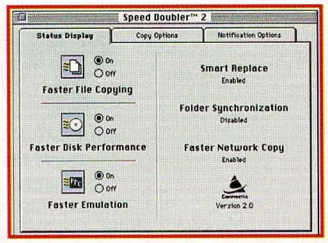
Expression is a new graphics package that promises much. Find out more on page 82.



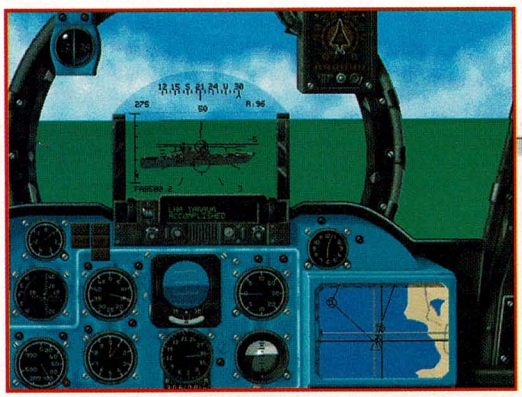
Is *Canvas 5* the ultimate publishing all-rounder? Check out the review on page 78.

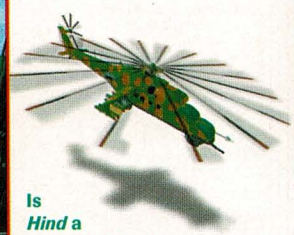


A fresh multimedia production program for beginners – can it be true? See page 84.

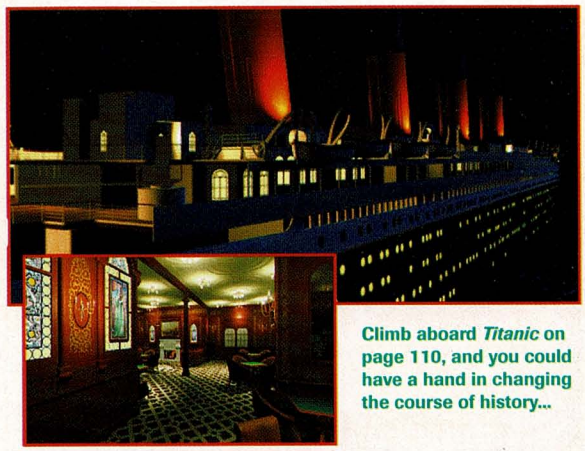


Want to live life in the fast lane? Then *Speed Doubler 2* could be for you – get to page 96 fast!





Is *Hind* a real high-flyer? For a bird's eye view see our review of this new helicopter flight sim on page 108.



Climb aboard *Titanic* on page 110, and you could have a hand in changing the course of history...

Reviews you can trust

Every MACFORMAT review is designed to inform you in detail of what you'd be getting if you bought the product being reviewed, and help you decide whether it's worth your money. It tells you the essentials, without the jargon.

MACFORMAT never just reprints spec sheets, press releases or reports from overseas magazines. Every product reviewed has actually been tested by our own reviewers.

MACFORMAT has a cast-iron policy of editorial independence. We are not influenced by whether the supplier or manufacturer of a product advertises in the magazine. They find out the rating at the same time you do, when the magazine is published.

MACFORMAT *does not review demos or unfinished programs.* We review only the finished products you could buy yourself, to help you decide whether to buy or not.

We give clear buying recommendations, and rate products using the following scale:

- If a product earns a rating of 90% or more, it wins a MACFORMAT Classic Award. This means we judge it to be a benchmark, a standard-setter of its type.
- 80+% means excellent.
- 70+% means well worthwhile or great value, though not particularly outstanding.
- 60+% means good, but with a few shortcomings or some limitations.
- 50+% means acceptable but flawed or seriously limited.
- A rating below 50% means think carefully before parting with your money (but we do distinguish between a product that's "almost there" and one that's a waste of time).

ON THE CD

This means there's a demo version, preview or sample on our Cover CD

The MACFORMAT info bar

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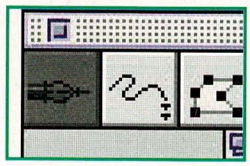
Price: RRP, inc VAT. **Contact:** The number to call for more information. **Web site:** Usually the maker's site, for more details. **RAM:** The minimum memory your Mac will need to have. Free RAM is the requirement excluding the System. **Processor:** Check the table on page 124 for your Mac.

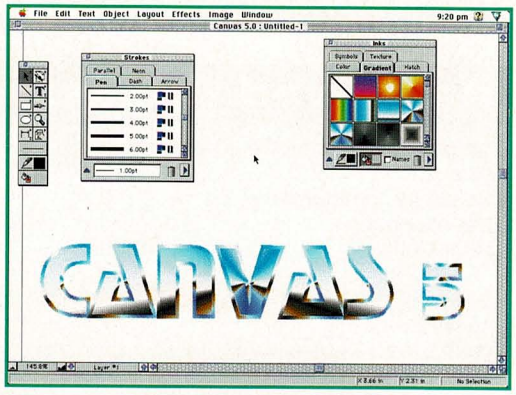
PRICE	£469	**ON SALE**	Now	**CONTACT**	Principal Distribution on 01756 704444	**WEB SITE**	http://www.deneba.com/
MAC	**Processor:** 68020 • **RAM:** 12Mb	**POWERMAC**	**Processor:** Any • **RAM:** 12Mb	**REQUIRES**	**System:** 7.0 • **HD space:** 20Mb • **Screen:** 640 x 480 • **Colours:** 256		

Canvas 5

Can you really create vector illustrations, manipulate photos and lay out your pages, all with a single application? Jim Chandler discovers that *Canvas* can do this and more...



Below: You can draw freehand, use the bezier pen tool, or make polygonal shapes.



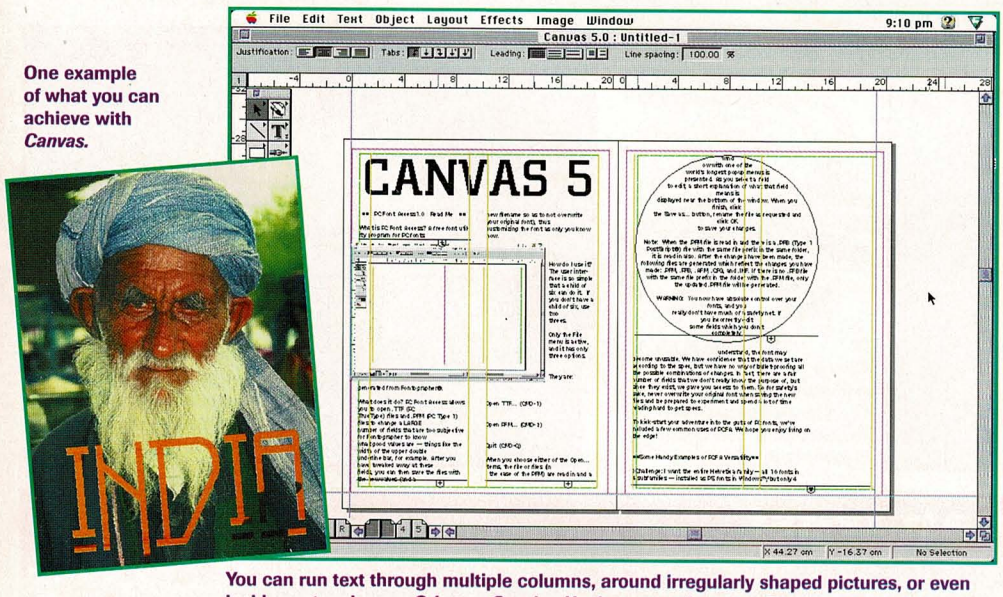
***Canvas* can add some impressive effects to PostScript or TrueType text. This gradient fill creates a metallic look.**

The Mac is used extensively as a publishing platform, and that software market is dominated by just a few major applications. *QuarkXPress, PageMaker, Illustrator, FreeHand and Photoshop* are the big players – and they all have big price tags to match. The trouble is, they are highly specialised tools designed to do one job, and do it well. That's why many publishing professionals have to buy more than one of them.

Photoshop is the acclaimed tool for image editing; *Illustrator* and *FreeHand* are useful for vector graphics, text effects and technical illustrations; and *XPress* and *PageMaker* can assemble all these elements on a page, together with the type you need to create your finished product. Buy them all and you won't get much change out of a couple of grand.

Enter *Canvas 5*, the publishing all-rounder. *Canvas 5* has just about everything – vector graphics, image editing, page layout and even presentation software, all rolled into a single, integrated package. It only costs as much as one of the major packages, but it has the same basic features as all of them rolled together. Inevitably, a jack of so many trades can't be master of them all, so what can it do, and what's missing?

One example of what you can achieve with *Canvas*.



You can run text through multiple columns, around irregularly shaped pictures, or even inside vector shapes. *Ode to a Grecian Urn* in an urn shape, perhaps?

Vector drawings

Vector graphics form the core of the program. There's a good selection of tools for drawing, from basic straight-line tools, to rectangle, oval, arc, bezier curve and freehand pen tools. On top of that, there are some real goodies, such as smart lines, which are perfect for linking boxes in, for example, family-tree diagrams, and some nifty dimensioning tools which enable you to use the drawing tools for basic computer-aided design. Other tools produce spirals and concentric circles, which can save time if you find yourself having to draw lots of these shapes.

If you need precision in your drawing, *Canvas* has a couple of tools that you'll find useful, in its Show Size and Smart Mouse functions. The first of these shows the size of the object you're drawing as you draw it, as well as the cursor position. You can select both a scale and the units you want to use, and *Canvas* will display the relevant scaled dimensions.

The Smart Mouse functions can be

Jargon Busters

Bezier curve: Vector graphics (see below) lend themselves to straight lines and arcs, but not as much to smooth curves. Bezier curves form the answer because they can be defined mathematically using only a few control points placed by the user.

Bitmap graphics: Bitmap images are made up of pixels, those tiny coloured squares which form the picture on your Mac's screen. Scanned pictures, and even screen grabs like the ones in MACFORMAT, are bitmap pictures. Because they are made of a fixed number of pixels, they lose quality if they are enlarged, with the pixels merely getting larger and making the image look blocky. Bitmap graphics are often referred to as "paint" images, and they are produced by "painting" programs from *MacPaint* to *Painter*.

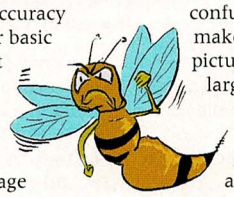
Vector graphics: *Canvas* can also handle vector graphics. Instead of being made up of pixels, these are generated mathematically (by the computer – you don't have to know any maths to use them). For instance, you might draw a circle that the computer regards as being "a circle 100mm in diameter, with a centre at 50mm across and 75mm down". If you change the size or position of the circle, the computer simply updates its description to reflect those changes. Because of this, vector graphics can be enlarged, reduced, stretched, squashed and rotated with no loss of quality. Vector graphics are often known as "draw" graphics.

Give 'em an inch...

Canvas is an American program, and nowhere is this more evident than in its use of imperial units for measurement. You can change the units, as you'd expect, but they're used in different ways by so many of the program's tools that it's a real pain.

If _Canvas_ really has been localised for any country other than the US, why doesn't it have metric units as the default? It's bad enough that we have to fiddle about with points, picas, ciceros and a dozen other arcane typographical nomenclatures...

used to make the mouse pointer, or the object which is being drawn or moved, snap to the edges, corners or centres of objects, or to a user-specified point. If you really do need pin-point accuracy (such as when using *Canvas* for basic computer-aided design), Smart Mouse is an invaluable aid.

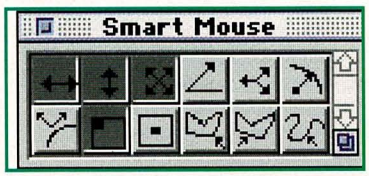


Expand your creative horizons with _Canvas 5_ – here's one we made earlier. You too could be the queen bee of the art world...

Bitmap editing

Canvas also handles bitmap image editing. Other vector drawing packages, such as *Illustrator* and *FreeHand*, have grudging support for bitmap graphics, such as scanned photos, and even enable you to use *Photoshop* plug-ins. However, *Canvas* has much better image-editing capabilities. You can import pictures in a wide variety of formats and work on them in much the same way as you can in, say, *Photoshop*. In fact, *Canvas* has a wide range of painting tools that you just wouldn't expect to see outside a dedicated paint package.

Apart from the normal brushes and pencil tools – of user-definable size, naturally – there's a Neon brush, which puts a glowing effect around strokes, and useful *Photoshop*-esque tools for blurring, lightening and darkening the image.



The Smart Mouse gives a series of options for precisely aligning your drawing elements to an accuracy of 0.5 microns.

There's even a Rubber Stamp tool for "cloning" areas of the image onto other areas. This is very useful for touching up photographs, removing scratches and dirt from scanned images, and so on. All in all, it's hard to think of a bitmap editing tool that's missing from this collection.

All together now

When it comes to image masking, *Canvas* has an ace up its sleeve in the form of its full set of vector drawing tools. *Photoshop* has bezier curve tools for drawing paths to be used for masking or clipping an image, but *Canvas* has a much greater range of tools to choose from. You can even convert text to paths and use it to mask an image.

Canvas supports alpha channels, too, so you can create those subtle image-to-image fades that grace most software boxes nowadays. And as a final nose thumbing to *Photoshop*, *Canvas* supports *Photoshop* plug-ins, so you can use filters such as *Kai's Power Tools*.

If you open an image in most graphics packages, it appears in a window containing just that image. *Canvas* opens bitmap pictures onto a page, which can also contain vector images. It's a little confusing to begin with, but it makes perfect sense. To *Canvas*, a picture is merely one element of a larger image or page. As part of this philosophy, vector and bitmap images are, to a certain degree, interchangeable within *Canvas*. Obviously you can't treat a bitmap as a scalable vector image, but there is a quite effective Auto Trace command which will find the edges of a black-and-white or greyscale image and trace a path around them. This is handy for making masks out of contrasting areas, or for converting scanned geometric shapes into editable vector shapes. You could even scan in a sketch and use it as the basis for a new drawing.

Going the other way is easy, too. If you have a vector image that you need to treat as a bitmap, you can render it into a bitmap file, choosing the resolution, number of colours and format of the file. The rendered image can no longer be edited using the program's vector tools, but now all the bitmap tools will work on it.

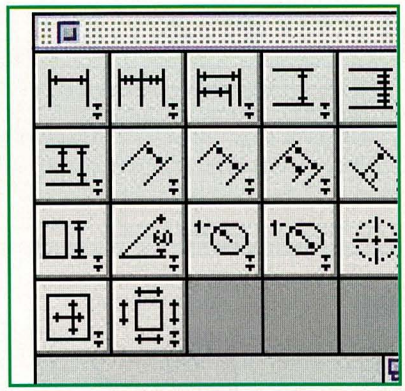
Desktop publishing

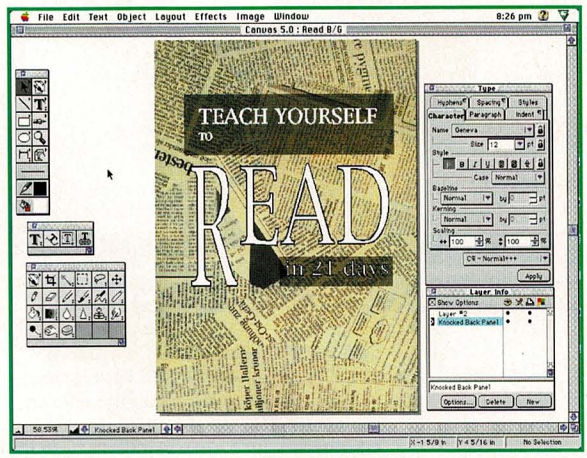
So you have your vector illustrations and your bitmap pictures. How do you make a page out of them? It isn't difficult, because *Canvas* also functions as a DTP program. It supports master pages, so anything that needs to appear on every page can be set up once on the masters. The program will then automatically put it on every new page you create. You can choose the size of the page margins, the number of text columns and the size of the gaps between them, and *Canvas* will set up non-printing guidelines so you can see where everything goes.

Facing pages are handled well, with allowances made not only for inner and outer margins, but also for different numbers and sizes of columns on left- and right-hand pages. You can set up headers and footers which appear on every page, too.

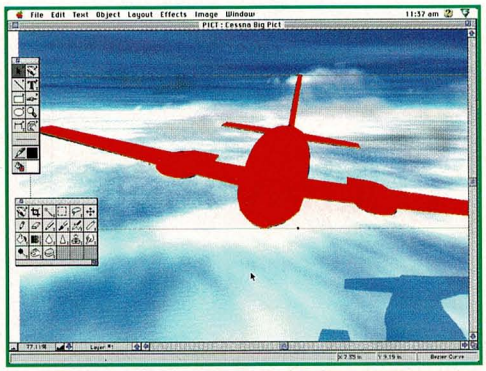
Chances are, this is where your work starts to come together. However, this is often the point where you realise that you've forgotten something. Maybe a picture hasn't been cropped, or a ➤

These excellent dimensioning tools will automatically work out the scale of your drawing and add witness lines, arrows and dimension figures.

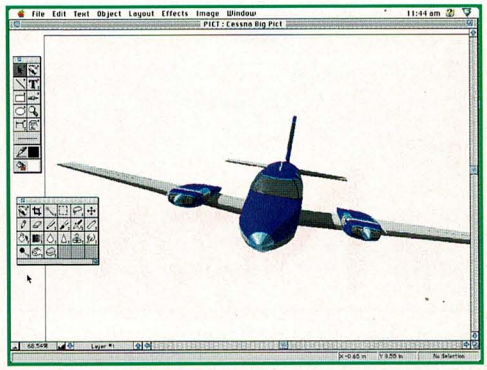




Designing in _Canvas_, you're saved the trouble of swapping between packages when working on both image editing and DTP.



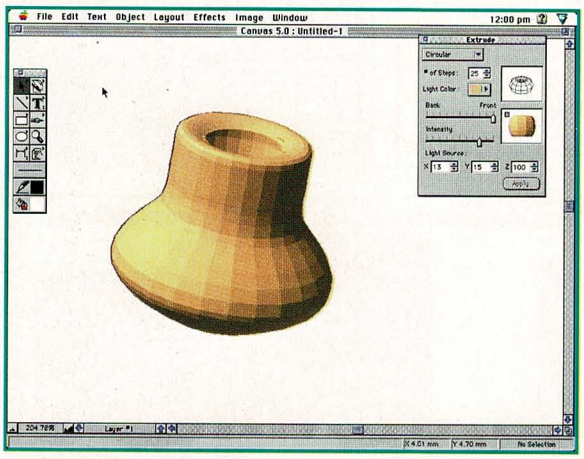
You can use the extensive vector drawing tools to draw around an element of your bitmap picture...



...and convert it to a mask. You can even use text outlines to create easy text masks.

Font of all wisdom

The *Canvas* package includes not only a CD containing the application, but also two more CD-ROMs containing clip art, photos, page templates and loads of quality fonts. Unusually, the application also comes on floppy disks.



Pseudo-3D effects such as this are a doddle. Simply draw the outline of an object and let the Extrude command do the rest.

logo isn't the right colour... Normally, you'd have to quit the DTP package that you were using and load up the relevant program to edit the picture in question. Of course, with *Canvas* you don't need to do this, as all these editing functions are part of the program.

Drag-and-drop layout

In many ways, *Canvas*'s DTP tools are similar to *PageMaker*'s. For instance, text flows in loosely defined columns from wherever you decide to place it – you can drag it into position later. It doesn't need to be put into a pre-defined frame, as in *QuarkXPress*. Graphics don't need frames, either. Just drag them where you want them. Making text flow in or around irregular shapes is a piece of cake, too. Just draw the shape you want with the vector tool of your choice, select it and the text you want to wrap, and tell *Canvas* to flow the text. Easy. You can even make text flow inside the outline of other text, though it's hard to imagine why you'd want to do this really.

Text effects can be applied as and when you need them. If you want your headline to follow a path, say, or be stretched, compressed, or filled with a pattern, you can do it without having to resort to using another program.

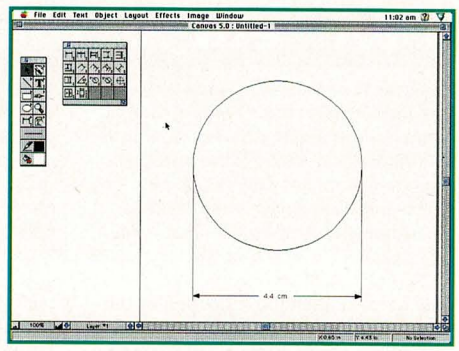
Presentation tools

Canvas's final set of tools steps outside the world of general publishing and into that of presentations. If you've never had one of these events inflicted on you, a presentation is a series of "slides", which are often literally 35mm photographic slides, but which are now increasingly generated on and then displayed by computers.

One advantage a computerised presentation has over a conventional slide show is that it can be animated. For instance, if you are explaining a series of points that follow on from one another, you can have them appear one by one. This isn't easy to achieve using real slides.

Canvas uses a slide metaphor when building presentations. The slides are built and handled rather like the pages of a DTP document, and *Canvas* even has a "Master Slide" which works like a master page. Your slides can be static or animated. They can have sounds attached to them, too, and you can even place a QuickTime movie into a slide and have it play as part of your presentation.

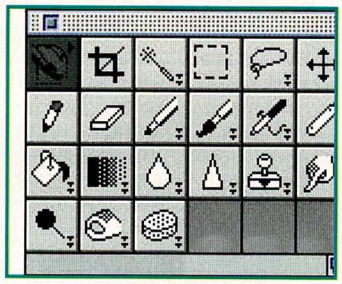
And finally, what of *Canvas's* text-editing abilities? Well, text can be made to run left or right, centred or justified, and there are good tab functions too – as well as the standard left, right and centre tabs, there are decimal tabs (useful for columns of prices) and even comma tabs (should you need them). *Canvas* also boasts automatic drop caps, you can play with letter spacing, and you can set up and save type styles with your document, changing styles with just a mouse click. It doesn't have *QuarkXPress's* advanced typographical options, but what it does have will keep an average DTPer happy.



***Canvas*'s CAD-style Dimensioning Tools often need no more than two mouse clicks – the application does the rest of the work for you.**

Canvas 5 does a lot. Between its vector, bitmap and page layout tools, it's hard to think of a useful publishing function it lacks. But if it's so versatile, why hasn't it become the dominant choice in the Mac publishing market? After all, it's been around for some years now.

Put simply, *Canvas* suffers from being a jack of all trades. Its vector and bitmap graphics tools are pretty good, and its DTP and presentation tools are adequate, but it doesn't shine at anything. Having so many tools has made its user interface a mess, too. Without practice, it's hard to find many of the tools, and many have further dialogue boxes for setting options. The tools can be "torn off" to create little floating palettes, but at the expense of screen area. It's not obvious how the designers could have improved on it, but the program has nevertheless become a victim of what programmers call "creeping featuritis".

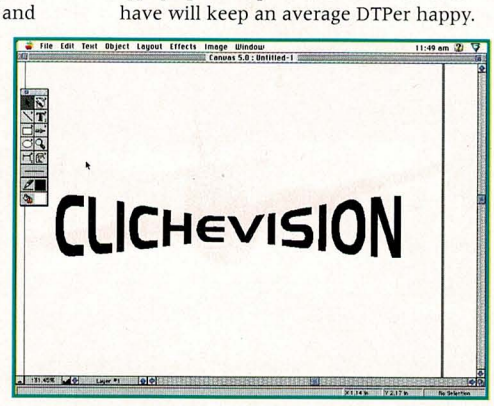


There's a good selection of painting tools, giving you immense control over bitmap images. If these look familiar, it might be because many of them can also be found in *Photoshop*.

Another problem with *Canvas* is its speed – or rather lack of it. Even on a reasonable PowerMac, with 24Mb allocated to it, *Canvas* is very slow. Screen redraws are painfully lethargic, and the bitmap editing tools frustrating to use.

Don't let this put you off too much, though. *Canvas* still has a highly respectable set of publishing tools. If you're a professional designer, you'll still have to consider the major players, but if you need a publishing application for your hobby, or for a works or club newsletter, *Canvas* is an ideal package. It provides far more layout and publishing power than, for example, *ClarisWorks*, but for much less cash than the market-leaders such as *Illustrator*, *FreeHand* and *QuarkXPress*. **MF**

The Neon brush can create some amusing effects. This is one tool even the mighty *Photoshop* doesn't possess.



***Canvas*'s Envelopes command can produce some great (and some rather hackneyed) text effects.**

Canvas 5

A solid and well-featured all-rounder that's spoiled by being rather slow and clunky.

Features	**92%**
Ease of use	**72%**
Documentation	**81%**
Value for money	**80%**

MF rating 86%

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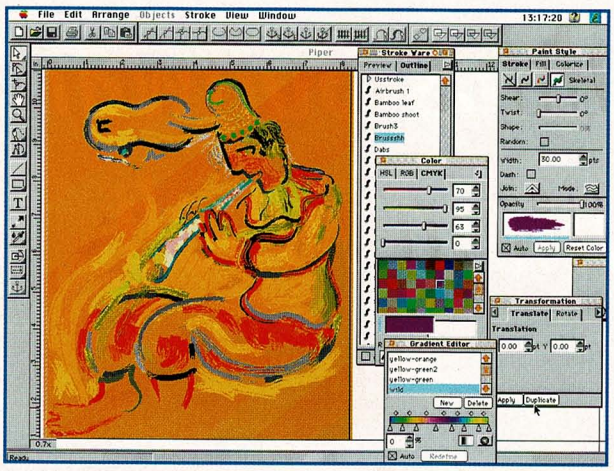
Extras: CD-ROM drive • FPU required for non-PowerMacs							



Is it possible that this hand-drawn artwork is made up entirely of vector paths, each of which can be edited node-by-node? This is precisely what *Expression* is all about. No other package can do this.

Fractal Design Expression

Fractal Design's new drawing package combines vector art with bitmap effects and could transform the way you work. Alastair Dabbs pulls out all his brushes and creates a masterpiece.

Expression is a vector art package capable of creating images which look as if they could have been produced in Fractal Design's *Painter*. The fractal and Natural Media effects from *Painter* have been programmed into "stroke" styles, which can then be applied to vector paths as you draw them.

This idea has tremendous potential. Think of the advantages of vector art, such as resolution independence, easy editing of lines and fills, reusability and so on. Then think of the advantages of paint packages, such as real-media effects, transparency and freehand airbrushing methods. *Expression* offers the best of both worlds.

The foundation of the *Expression* approach is the stroke, and the program comes with loads of ready-made stroke styles which you can select from a floating palette. These range in appearance from solid brush shapes to textured swipes to patterns and even pictures. A line can be made to look like a paintbrush sweep, rope, footprints, piano keys, a moray eel and so on. It's the same path whatever style you apply, and the path is editable too, exactly as if you were using *Illustrator* or *FreeHand*.

Many of the strokes have a particular start and finish, and the start is anchored as soon as you begin a path. A heavy paintbrush, for example, in a mimicry of real life, starts off "blobby" and finishes with a "hairy" effect. A pictoral stroke of a train would start with the engine.

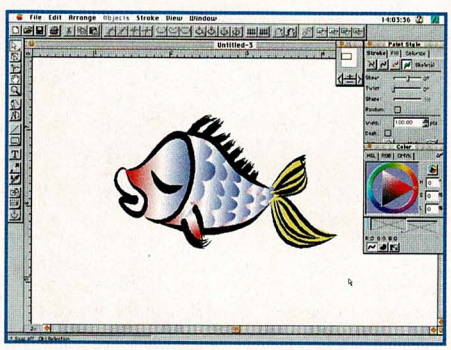
Because of this, the program enables you to specify beginnings and ends of paths, whereas other vector art packages just assign identical properties to any free path-ends. Furthermore, you can reposition a closed path's commencing node anywhere along the path.

Naturally, you are provided with the standard set of vector drawing tools, including a node-by-node pen tool, a freehand tool and various shape tools. If you have used any other vector package before, you will find the tool palette interface reasonably intuitive, although you might be surprised by the inclusion of some remarkably CAD-like polyline and B-spline tools.

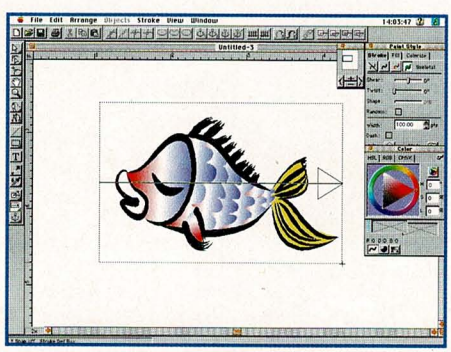
For more regular vector artwork, *Expression* uses a traditional arrangement for object fills and a colour palette which has been lifted straight from Fractal Design's other software packages. It may be a matter of taste, but the latter does *Expression* no great favours, because the ring-and-triangle method of colour definition is as unnatural a way of choosing colour as anything we can think of. You can still use colour swatches, though, and the product comes supplied with a variety of spot and process libraries which can be loaded if you prefer to work that way. You also have the normal choice of HSL, RGB and CMYK colour spaces for creating custom colours.

The **Paint Style Fill** palette enables you to apply more than just colours to objects, though. *Expression* also comes with an attractive selection of patterns and realistic hatching effects, as well as the gradient fill tool, which enables you to set up multistep, multicolour gra-

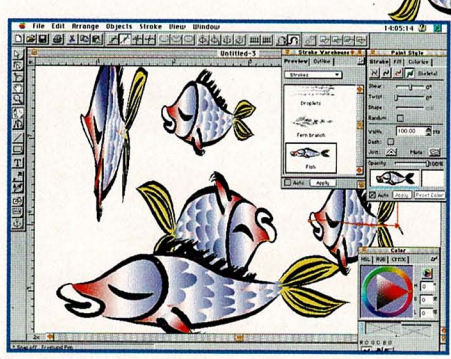
Creating a new stroke



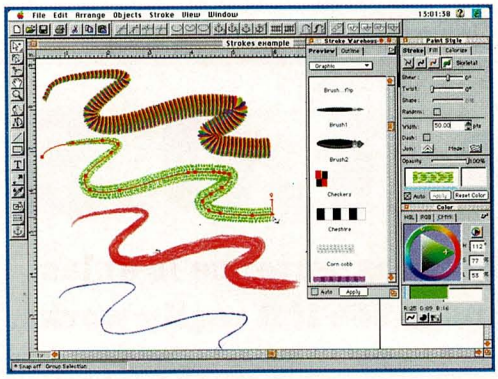
1 It's easy to create your own pictoral strokes (like a "brush" in a bitmap paint package, but path-based). First, start with a graphic that will make a reasonable stroke – and keep it simple!



2 Drag a **Stroke Definition Box** marquee over the entire image (don't include too much white space at its sides). Name the stroke, give it a default width and save it with your existing strokes.



3 Yes, it really can be as straightforward as that. The new stroke appears immediately in the **Stroke Warehouse** palette and you can select it and then start drawing with it.

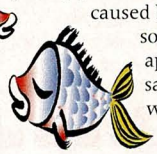


Take a path and apply any stroke style to it. A single click can make a freehand squiggle look like a neat line, tyre tracks, a painted smudge or a rainbow ribbon.

dients along a slider. This a particularly strong feature of the package.

The only real problem is trying to get these palettes to work in unison, so you know what is happening. Theoretically, changing a colour will instantly update all associated strokes and styles, for example – but unless you're running the program on a fast machine, this transition can take more than a few seconds. This, combined with the fact that the screen redraws slowly when the artwork is complex, makes *Expression* unsuitable for any machine slower than a PowerMac, even though 68K Macs are supported. Running *Expression* on a Quadra is so excruciatingly slow that you'll end up throwing your Mac through the window – followed by yourself. Oddly enough, though, activating the on-screen anti-aliasing option in the program's **Preferences** does not significantly decrease the redraw speed on any type of Mac.

One of the most interesting, yet hidden, benefits of *Expression's* vector-and-bitmap hybrid is dynamism. If you want to create an animation in, say, *Painter*, you can use an onion-skin approach, akin to cel or paper-based animation techniques, and painstakingly redraw each step of the animation. However, since *Expression* holds all its information as vector points and values, and then applies stroke and fill properties to them, animation is just a matter of nudging path nodes. The amount of information to be processed in each step of the animation is minimal – it's just a bunch of nodes, basically, with all the properties applied afterwards.



Fractal Design has taken the potential of this feature a reasonable way, enabling you to generate QuickTime movies from your nudged nodes, but it has yet to go the whole hog. When the product was first announced, there was talk of a Web browser plug-in which would play these animations across the Internet – but this function has yet to materialise.

Perhaps even more useful if you're a regular artist, is the way you can build dynamism into your strokes. Any stroke style you create can incorporate movement and other changes. You then apply these changes to your artwork from the **Styles** palette, instead of having to fuss with nodes manually in each instance. (See the sequence at right.)

In general, the ability to turn a piece of artwork into a stroke, and then reapply that stroke to any path, is unique to *Expression*. The fact that you can customise the appearance of each instance of that stroke without editing nodes is, well, doubly unique.

There are a couple of important limitations that need to be addressed, though – if not by Fractal Design, then at least by you before you reach for your wallet. The first is the way transparency effects are applied. Transparency of styles, colours and strokes in *Expression* is automatic, but it isn't supported by PostScript. Printing to any PostScript-driven device, be it a LaserWriter or a Linotronic, will remove the transparency from your artwork in one fell swoop. Before you can print images, or use them with DTP packages such as *QuarkXPress* and *PageMaker*, you first need to export your artwork as a rasterised bitmap image. This isn't a perfect solution, but you have to take it or leave it, because there's no other choice at the moment.

The second major irritation is that *Expression* does not like third-party System Extensions – in fact it hates them. During testing, we found *Expression* to be highly intolerant of many popular Extensions, most notably (but not exclusively) *RAM Doubler 1.6.2*. You may need to either switch it off or upgrade to version 2.0 before *Expression* will run.

Conversely, *Expression* is surprisingly resilient to System crashes caused by Extensions and other sources. In most cases, the application intelligently salvages whatever you were working on at the moment of impact – even if you hadn't saved it. Once you restart *Expression*, even if you have to restart your Mac first, you are presented with a window containing as-near-as-dammit the last thing you saw on-screen. If only all programs were capable of doing this.

The key issue, though, is sheer processor power – perhaps even more so than memory. If you have an old Mac, give *Expression* a miss. If, however, you have a fast PowerMac, and want to expand your graphical horizons, we can't recommend *Expression* highly enough. **MF**

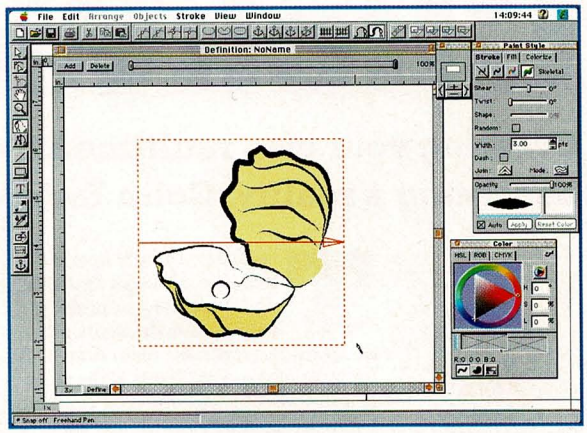
Fractal Expression

Just when you thought there was nothing new in Mac graphics...! *Expression* won't replace *FreeHand*, *Illustrator* and *Photoshop*, but it's useful, fun and good value. Get it.

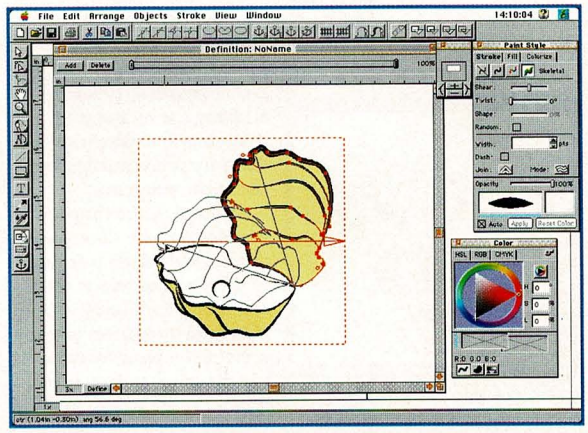
Features	**90%**
Ease of use	**85%**
Documentation	**90%**
Value for money	**95%**

MF rating 90%

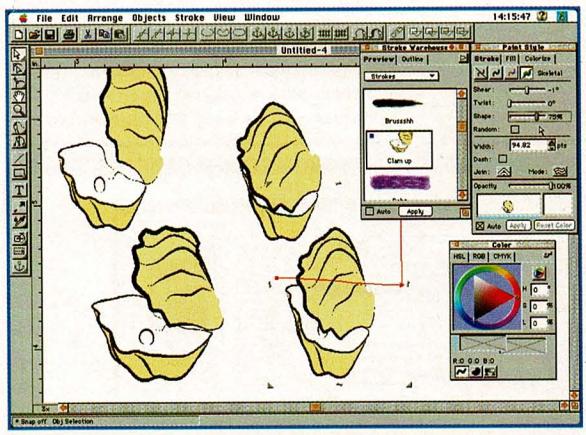
How to create a dynamic stroke



1 It is possible to create new strokes incorporating built-in dynamic effects, which can simulate motion across multiple images. Here, we'll create a stroke of a clam that can be opened and closed. Drag a Stroke Definition Box over the basic artwork.



2 In the window that appears, click Add to ensure a new animation cell is added to the stroke. In this window, select the areas you want to animate (here, the clam's top shell), and move it to a new position. Use the Rotation tool to rotate the shell.



3 With the new stroke named and saved, you can start drawing with it. The clams all look identical, but you can make the clam open and close by adjusting the Shape slider on the Paint Style Stroke palette. There's no need to adjust the image manually.

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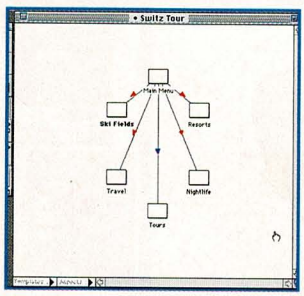
ClickWorks 1.0.3

Creating your own multimedia without programming experience is at last becoming a reality. Colin Dalziel clicks the buttons to see if it really works.

ON THE CD

Limited, save-disabled demo.

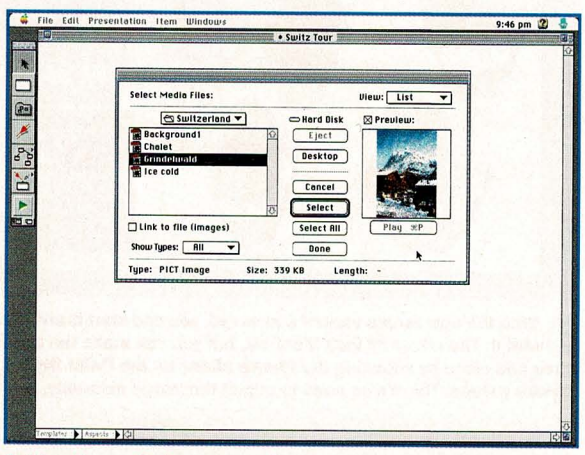
There are currently over 60 software packages available which enable you to create your own multimedia productions. However, the main drawback for most of these programs is the steep learning curve which must be climbed before you can accomplish any useful work. For a new package to make any headway in this fiercely competitive market, it must offer either a new range of features or at least an easy way of achieving existing tasks. *ClickWorks* has concentrated on the latter by taking multimedia almost completely away from its programming roots, giving you a simple interface where clicking the mouse and dragging-and-dropping are the only prerequisites for using the program.



You create and link all the screens for your project in the Presentation Editor window by simply clicking with the screen tool and joining them together with the link tool. Easy when you know how.

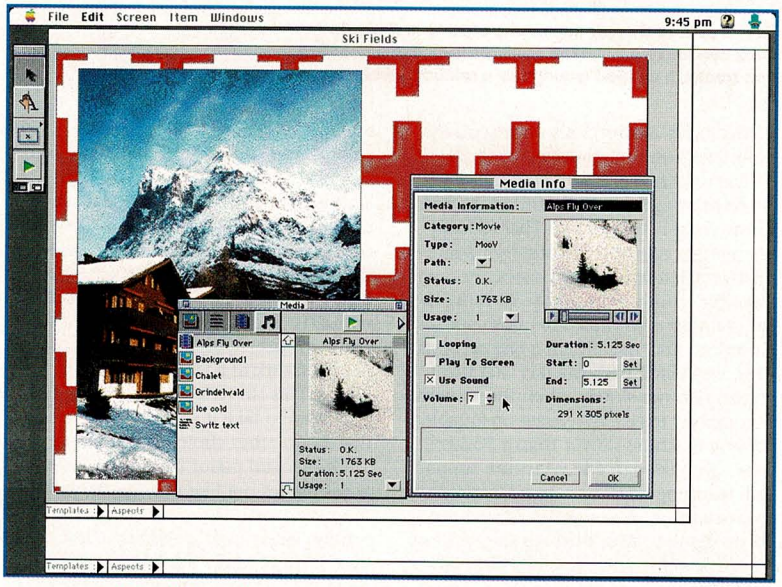
As proof of the simplicity of working with *ClickWorks*, the tutorial which is included in the documentation takes less than 15 minutes to complete and introduces you to most of the basic features of the program. In fact, in a quarter of an hour you'll find yourself producing the first page of a multimedia tour of India, which includes background music, images, text, QuickTime video and pop-up information boxes that can be activated by the press of a button. Not at all bad for a beginner.

When you open a new project, the **Presentation editor** screen will be displayed. This gives you an icon-based overview of the content of your work, and it's also where you define the links between screens. If you're familiar with *Apple Media Tool*, the interface is very similar to *AMT's* icon-based map window. You create new screens in your presentation by selecting the Screen tool and clicking in the **Presentation** window – an icon then appears representing the new section of your production, and you can use the link tool to connect the icons together. This will then enable you to design navigation between linked screens using "hot" areas or "active" buttons within the screen. But of course, before you can have any interaction, you must first add your media.

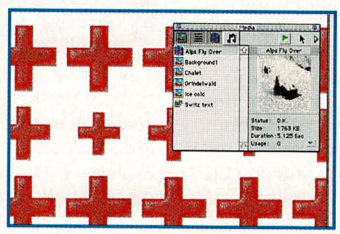


Getting the media into your project is very simple, especially as *ClickWorks* supports a wide range of file formats.

Multimedia is all about combining four key types of files – text, images, sound and video. *ClickWorks* enables you to import common file formats including a variety of text-files, thanks to the inclusion of XTND translators. These include JPEG, TIFF and PICT image formats; AIFF and System 7 sound files; and QuickTime video and presentations created in Macromedia *Director* versions 3.x and 4.x. The facility to include *Director* movies may be useful if you want to expand or update old work, though it is somewhat limited with the lack of support for the latest version of *Director*. Still, this range of formats for various media is among the widest of any authoring package available at the moment.



You can get all the information you need about any media element by simply double-clicking on the object in the Media window.



The Media window enables you to preview any type of imported material before you drag it onto your project.

When you want to import media, it's simply a matter of selecting **Add** from the **Media** window (found in the **Windows** menu), and choosing what you want to import. All the newly imported media items are then available from the **Media** window. If you then double-click on the screen icon, it opens up the screen for you to place the media elements where you want them. This is done by dragging any media directly from the **Media** palette and placing it on the screen. You can place it by eye or, for pixel-point precision, you can use the **Infomania** palette to type in the exact co-ordinates.

But to bring your work to life, you need to include active areas which users can click on. The **Events** palette enables you to program the interaction in your project, by giving you access to simple pop-up menus – here you can define

what happens when your audience interacts with the media. You can set entire objects to be active such as buttons, or make key areas within an image active – such as the countries on a map.

The real strength with *ClickWorks* here, is that you don't have to remember the correct syntax for programming the interactivity – it all just pops up on the menu for you to select the correct option. You only need to have a basic grasp of logical systems to know what you're doing, and this is no more than mastering simple functions such as **IF** and **THEN**. For example, if you were creating a button to control a QuickTime movie, you would have to apply the following properties to it: **IF** the play button is clicked **THEN** start the movie. Of course, more advanced options are accessible, although you may have to think through the way the properties are assigned to be sure things work the way you want them to.

Once you have mastered putting together basic screens of work, you can use *ClickWorks'* facility to produce time-based productions. Using the **Time** palette, you can assign time-based attributes to any on-screen object. For example, you can make a stop button appear after a certain amount of a video has played, or make a sound fade down after it has played for a few seconds at full volume.

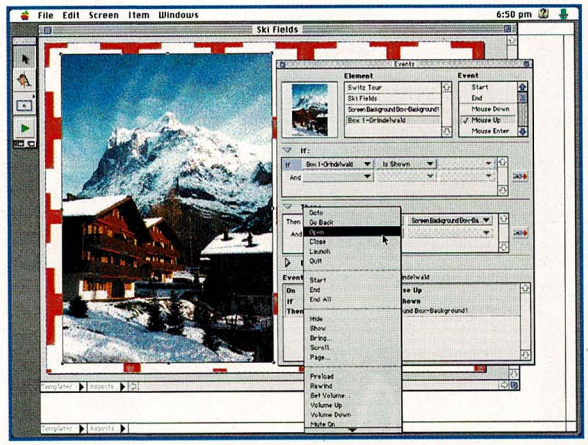
You can import formatted text, or, if you prefer, add text as you work – using the Infomedia window to add styling.

When you want to test your work, you simply click the **play** button on the toolbar. This launches the *ClickWorks Player*, a separate program (included with *ClickWorks*), which then plays your work. This is a slightly long-winded approach to previewing though, as you have to wait a few seconds for the program to launch. Once you have tested your work, you have to quit the *Player* to get to the ***ClickWorks* editor.** While this is not a major problem, it is rather irritating to have to wait each time it goes through the loading routine – especially when you have a slight problem with your work or need to tweak a fine detail.

Taking the programming a step further, you can also create customised searches and handle data in more advanced ways. These extra features include counter functions, and assigning attributes to searches. While the programming is still accessed through familiar pop-up menus, this type of work is not really for you if you're just starting out, as a reasonable level of knowledge about how programming attributes interact is needed.

To create a standalone version of your project, you simply select the **Create Standalone** from the **File** menu – naming the file and saving it does the rest. However, the file created is not totally self-contained – you must include any movies and sound files which are part of the presentation and the all-important *ClickWorks Player*, which is a somewhat bloated 4.3Mb file. In most cases this won't be a problem, but the size does rule out producing simple slide-show presentations for distribution using a floppy disk.

ClickWorks has already been updated to version 1.0.3, suggesting that the manufacturers are listening closely to customer feedback to iron out minor bugs – the updates are available for download from the Pitango Web site. Alternatively, it could also be that the program was rather rushed out, as some of the features are not yet fully implemented. An example of this is WebLink, which is an extension which enables you to link a presentation directly to the Internet. The idea is to have any time-sensitive parts of your work updated from the Web, so that no matter when you deliver the presentation, it's bang up to date. WebLink is currently at Beta stage (that is, as yet not completely finished), but it is included with version 1.0.3, together with a slim manual explaining how to use the feature. WebLink is a nice idea but at the moment it's rather basic, with no support for JPEG being a significant limiting factor.



Adding interaction is simply a matter of choosing from the options presented to you in the pop-up menus.

As the Mac is the preferred choice for many cross-platform developers, the current lack of support for a PC player is also an important missing feature. However, the player is now at Beta stage, so it should be available in the near future.

The price of *ClickWorks* is considerably more than many of its competitors, at about the same as *Director*, but *ClickWorks* is not aiming for the same customer base as *Director*. *ClickWorks*, while undoubtedly less feature-laden than *Director*, offers a level of ease of use which will enable almost anyone to produce professional looking multimedia without the stress of a steep learning curve. **MF**

ClickWorks 1.0.3

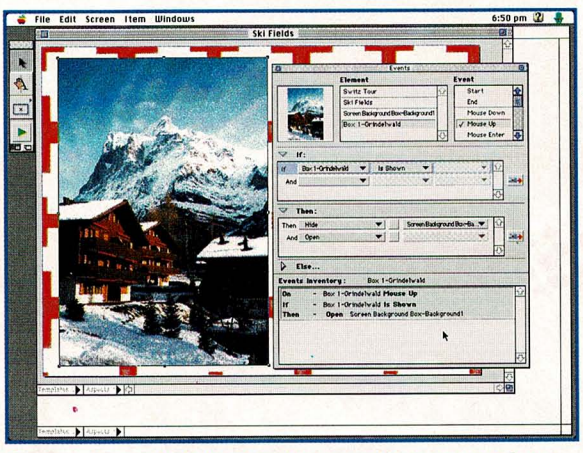
ClickWorks is a good option if you want to put together simple multimedia without having to spend too much time learning a new programming language – although the ease of use doesn't come cheap.

Features	**77%**
Ease of use	**85%**
Documentation	**73%**
Value for money	**68%**

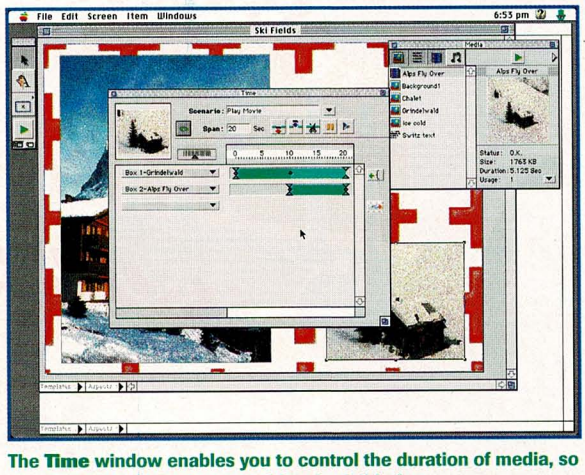
MF rating 78%

Web crazy

For information on over 60 multimedia authoring programs, check out the Multimedia Authoring Web at **http://www.mcli.dist.maricopa.edu/authoring/lang.html/**



Once you have added the interactive properties, an events inventory displays the options you have selected as a quick reference.



The Time window enables you to control the duration of media, so you can control how long an object is visible for.

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Nisus Writer 5.0.1

The first word processor to have the word "OpenDoc" on the box has now been released. Will this herald a revolution? Derek Smith investigates...

ON THE CD

Fully functional time-limited demo.

What you are reading now isn't the first draft of my review. Originally it lacked a strong ending, so I re-wrote it. Then the editor complained it wasn't detailed enough, so I produced a third version. In fact this is the fifth draft of my review. Impressed? More eager now? Of course not. You couldn't care less. It's the finished article that's important, not the number of re-writes. And it's the same story with software version numbers.

Software houses are desperate to bring out new versions of their software. Money is certainly a motive, since all current owners are likely to upgrade. But another strong motive is to have a higher version number than the opposition. *Widget 6* must be better than *Wotsit 5*, because... well, it's one more. In fact, some companies are so keen, they skip whole numbers. For instance, *FreeHand* recently went from 5.5 to 7!

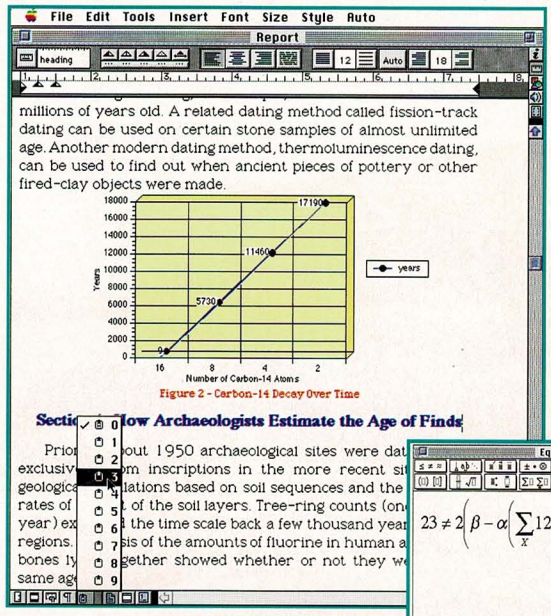
So it's with this in mind that we come to *Nisus Writer 5*. It goes head-to-head with Microsoft *Word* and Corel *WordPerfect* as a fully featured professional word processor. We made the point last issue in our review of *WordPerfect 3.5* that all three packages are evenly matched for features. After all, when you think about it, there's only so much that a word processor can do (spell-checking, tables, indexes, graphics and so on) and they all reached this saturation point way back.

However, Apple has developed an exciting new technology called OpenDoc, and you can read all about it in our cover feature, starting on page 32. *Nisus 5* boasts its new credentials as the only OpenDoc-aware word processor. So what does this mean in practice?

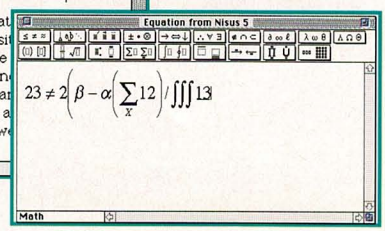
Well, crucially, *Nisus* has not been transformed into OpenDoc Live Objects. This scenario would see the text editor as one Live Object, the spell-checker as another, with the equation editor, table tool and graphics module, each as their own Object.

Instead, *Nisus* is an OpenDoc container. That is, if you choose to install OpenDoc, you can incorporate third party Live Objects into one of your word processor documents. For instance, if you had a graphics Live Object, you could use it to draw directly on a *Nisus* page instead of having to use *Nisus'* own rather basic graphics module.

This is a half-hearted approach to OpenDoc, meaning that you don't actually need it installed to use *Nisus*. Mind you, it's completely understandable. If it were truly broken into Live Objects, you would be forced to install OpenDoc to use it, and not many people have done this yet. And considering the lack of


File Edit Tools Insert Font Size Style Auto
Report
heading
millions of years old. A related dating method called fission-track dating can be used on certain stone samples of almost unlimited age. Another modern dating method, thermoluminescence dating, can be used to find out when ancient pieces of pottery or other fired-clay objects were made.
17190
11460
5730
0
Years
years
Number of Carbon-14 Atoms
Figure 2 - Carbon-14 Decay Over Time
Section ... How Archaeologists Estimate the Age of Finds

Nisus has all the menus and toolbars you'd expect, and ten clipboards are accessible from the pop-up menu at the bottom left, so you can copy and paste several things at once.



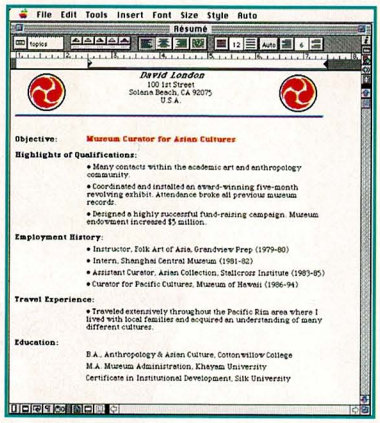
I'm well on my way to explaining the existence of dark matter with the *Nisus* equation editor. Nice squiggles.

Grammar

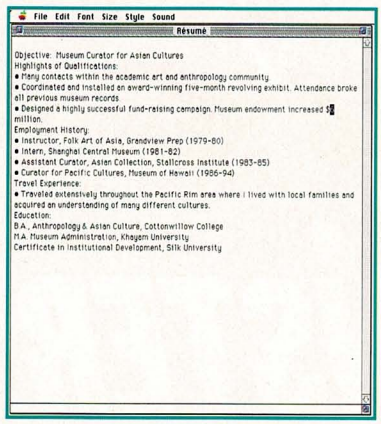
Nisus lacks a grammar checker, although this shouldn't affect your purchasing decision because they aren't very good anyway.

Compare and contrast

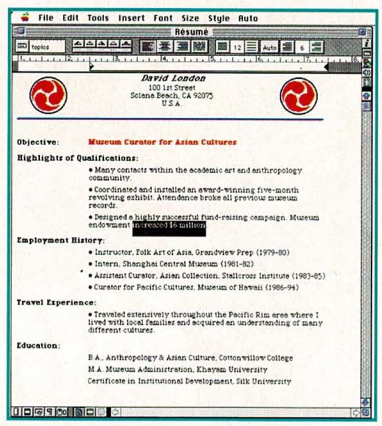
Nisus has the ability to compare two documents and display the differences. Ideal for version control!



1 What's the most impressive feature of *Nisus*? OpenDoc? PowerTalk? Publish and Subscribe? No. They're all fine technologies, but no-one wants them.



2 I can open this native *Nisus* document in *SimpleText* with no need to export it. Okay, it loses all the formatting, but I can still edit the text and save it.



3 Then double-click on the document and it opens straight into *Nisus* again with the edit in place. Come on, software publishers, this is what your public wants!

decent Live Objects available, you might not be willing to suffer the memory overhead that OpenDoc requires.

It's chicken and egg. No major software package has gone properly OpenDoc, and the only one that has announced its intention to, *ClarisWorks 5*, is not due for another few months away. This is a great shame. If *Nisus* and other applications were turned into Live Objects, you could use *Nisus'* text editor to enter text into, say, *FreeHand*. You would only need one spell-checker, and you could delete extraneous utilities such as the equation editor, which no-one ever uses.

Talking of failed technologies, since version 4, you can send documents directly from *Nisus* to another Mac on the same network. It does this by utilizing Apple's PowerTalk technology. The likelihood is that you've heard of PowerTalk, but that you've never used it. It's a simple Mac-to-Mac mailing system, intended to make internal company e-mail easy and free. Although it's clever and simple, like Publish And Subscribe, it never caught on. It required more memory and was only ever going to interest medium sized companies. In fact, I understand that System 7.6 no longer supports PowerTalk. Bad luck, *Nisus*.

OpenDoc means that you can incorporate live Web pages as part of your word processing documents. All I need to do is think of a use...

But it's not all doom and gloom – *Nisus* does have some things going for it, and especially useful is the ability to highlight non-contiguous text. In practice, this means that you could highlight the first letter of a number of paragraphs and change the point size in one go. Also, if you regularly use tabs and columns, you'll appreciate the ability to drag a selection box to highlight a rectangular block of text. Version 5 is also the first version to support drag-and-drop text. Unfortunately in our test this consistently caused one of our test Macs to crash.

Another favoured feature is the "undo" command. You can undo and redo the last 30,000 actions, even across saves. Of course, when we do save our documents, we always give them sensible names so we can locate them in three months' time, right? Well if you can't remember which document contains a particular piece of text, *Nisus* has a built-in search facility that will rummage through selected files looking for any key words you request.

For my money, though, its strongest feature is the ease of opening documents. Any version of *Nisus* can open documents created in any other version – you can even open and edit a *Nisus* document in *SimpleText* without exporting it.

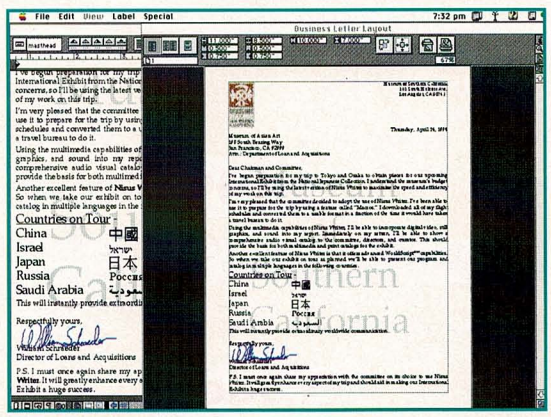
The problems occur when you try to open documents created in other word processors, particularly from a PC. *Nisus* now comes with *MacLinkPlus*, a set of filters specifically designed to this process. It's a cut down version of the full commercial product, but it's bundled with a lot of programs, illustrating the importance of cross-platform compatibility.

While they do improve the situation, it can still be a tortuous process. On one test Mac, everything worked fine and we could open native PC *Word* documents. On another, *Nisus* continually thought these documents were graphics, while a third just crashed. The really sad lesson is that if you want to be sure of opening documents sent to you from a wide variety of sources, you need a copy of Microsoft *Word*.

The situation isn't helped by the lack of a PC version of *Nisus*. This may not concern the individual user, but it prevents *Nisus* from ever gaining serious acceptance by larger companies, who usually have a mixed network of PCs and Macs.

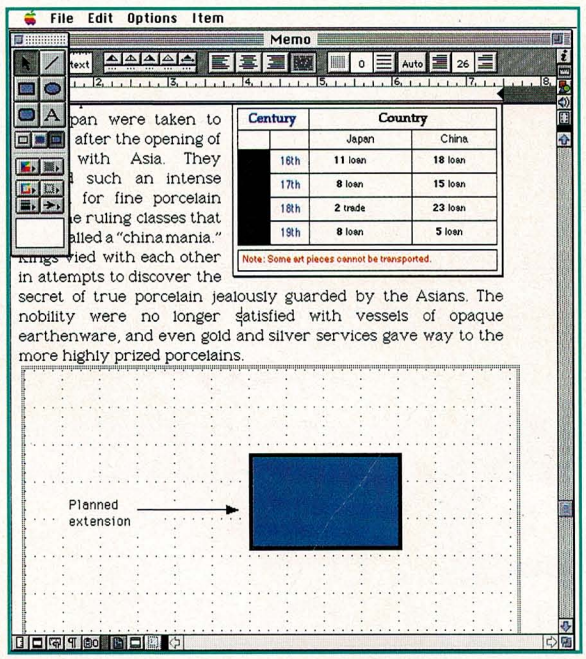
Strangely for a Mac-only product, though, the interface doesn't feel very Mac-like. The commands under the pull-down menus aren't named or positioned quite as you would expect, unlike *WordPerfect*, which gives the feeling of walking into a stranger's house and knowing where everything is.

Nisus has the obligatory tool bars full of buttons that do the same things as the pull-down menus. Unlike other programs that put them at the top of the window above your text though, these are free-floating palettes. We found this more awkward, as you never quite know where to put them.



You can see exactly how your document will print, in a separate layout window. Not quite "what you see is what you get".

At least the manual has improved a little. Whereas version 4 had five separate manuals, version 5 has just one, thick manual. Like the program, it isn't very friendly but it serves its purpose.



The jury is still out on OpenDoc, but if the *Apple Draw* Live Object (an OpenDoc component) is typical, then it's hardly cutting edge.

Finally we come to value. For a street price of around £99, *Nisus* is notably cheaper than *Word* or *WordPerfect*, despite the fact that it matches them feature-for-feature. However, you don't get any bundled software or clip-art.

Mind you, if you don't need advanced features like automatically generated indexes, you might be better off going for *ClarisWorks* at the same price – indeed *ClarisWorks* actually has better DTP tools. For instance, while you can opt for multi-column layouts in *Nisus*, you can't manually draw text boxes and link them together for more complex layouts.

And what of the upgrade if you already own version 4? Interestingly, there isn't the usual paper or electronic documentation listing all the new features of an update. Eventually, I found this information on the Internet, and although it's several pages long, I have to report that apart from being an OpenDoc container, there is very little else of significance. Admittedly it is now scriptable using AppleScript, but it's not recordable, which would be more useful.

Frankly, this should be numbered version 4.5, and the upgrade from v4 offered at a nominal charge. Unless you intend to use OpenDoc, it's very hard to justify playing the numbers game. **MF**

Nisus Writer 5.0.1

Powerful and reasonably priced word processor which resembles a postman threatened with redundancy... doesn't quite deliver enough.

Features	**81%**
Ease of use	**72%**
Documentation	**74%**
Value for money	**85%**
MF rating	**78%**

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At long last, *Nisus* finally has the ability to count the number of words in a highlighted selection, not just the entire document. Previously you had to write a macro to do this – but at least there is a built-in macro feature.

Upgrades

Want to upgrade from a previous version of *Nisus?* Here's what it'll cost: CD and manual (or floppy and manual), £76.37; CD only, £58.75 (no floppy, only upgrade). "Cross-grade" from another WP, £76.37.

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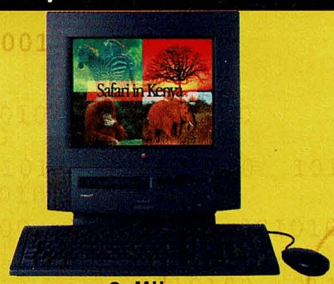

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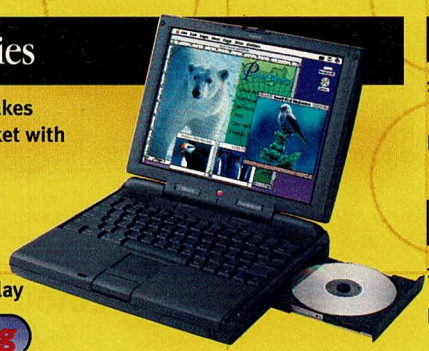

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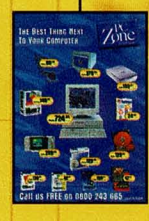

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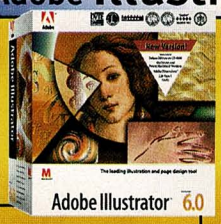

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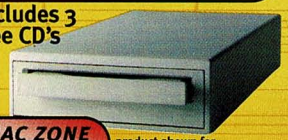

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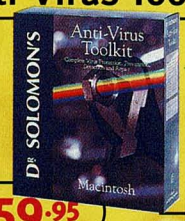

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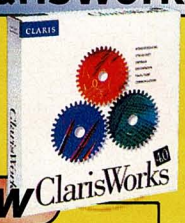

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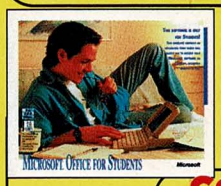

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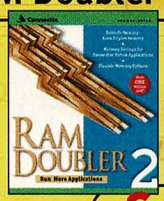

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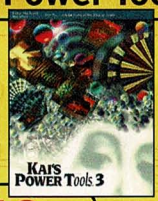

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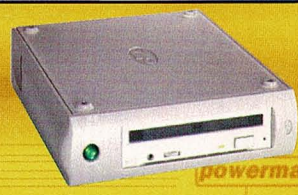

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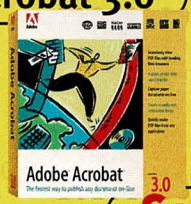

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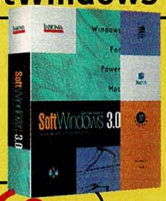

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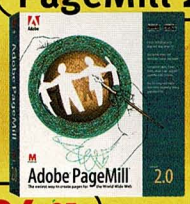

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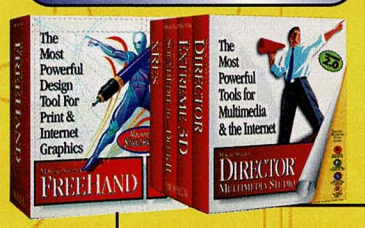

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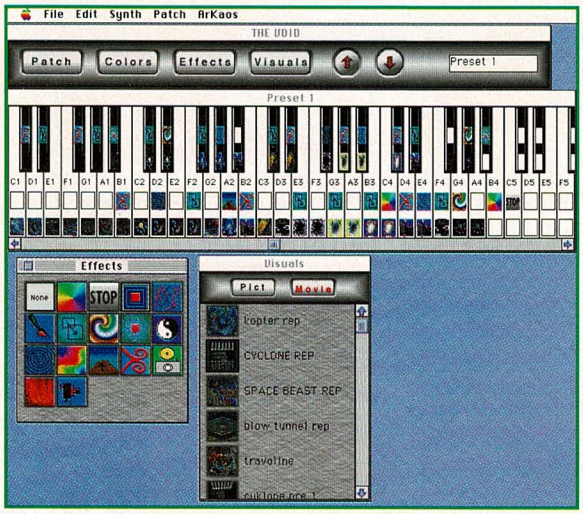


***X<>Pose*'s drag-and-drop interface makes it easy to assign visuals and effects to notes.**

X<>Pose Visual Sampler

Flashing lights, psychedelic effects and moving pictures. This new release does for images what a sampler does for music. Ian Waugh plays Picasso...

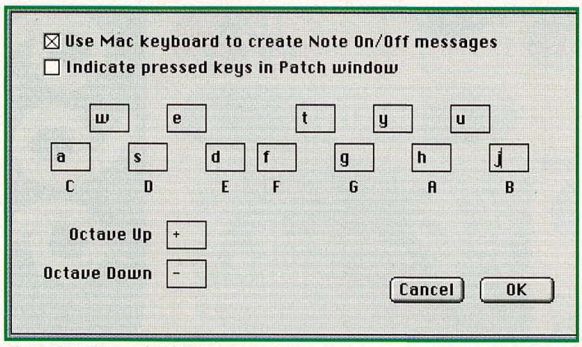
ON THE CD

Two demos – one save-disabled, the other a slideshow.

It's not often that a piece of software can genuinely claim to be unique, but we haven't seen anything quite like this before. It could be a sort of *Director* for musicians or a chill-out program for wireheads. But it's not, it's a visual sampler.

Steinberg's *X<>Pose* (and yes, that's how it's spelt) displays images and movies and generates visual effects in response to MIDI data. If you're thinking it generates random images in response to music, you'd be wrong – it's far more clever than that.

X<>Pose calls itself a visual sampler, so follow that analogy: a sampler responds to MIDI note information by playing a note while *X<>Pose* displays a picture or, in its terminology, a visual. The concept really *is* that simple, but the program has a few more bells and whistles tucked up its MIDI interface.


Use Mac keyboard to create Note On/Off messages
Indicate pressed keys in Patch window
w e t y u
a s d f g h j
C D E F G A B
Octave Up +
Octave Down -
Cancel
OK

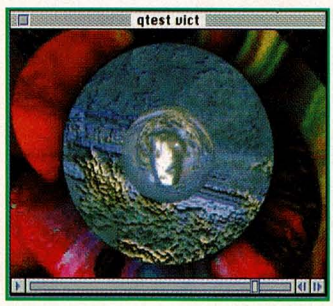
If you don't have a MIDI keyboard to hand, you can control *X<>Pose* from your Mac's keyboard.

Visual gratification

The first step is to assign visuals to notes, and several sets are supplied, so the instant gratification factor is very high! When you've calmed down you can create your own. There are four main sections to the program. The **Visuals** window lists the available images, which will be PICT files and QuickTime movies. You import these from disk and they then appear in the window.

The **Effects** windows lists the effects which can be applied to the visuals. *X<>Pose* has several built-in effects and supports a Plug-In architecture so you can add other effects as they are developed. The effects are specific to *X<>Pose*, however, so you'll have to wait for Steinberg or third-parties to develop them.

The **Patch** window shows a music keyboard and this is where you assign visuals and effects to specific notes. You do this simply by dragging them from their respective window to the note. Dead easy! When that note is played, the visual appears and the effect is applied. The allocation of visuals and effects to notes in the **Patch** window is known, naturally enough, as a patch. The **Synth Panel** holds collections of patches – you can probably see the synth/sampler terminology coming through – and offers quick access to the other windows.



***X<>Pose* comes with a wide variety of QuickTime movies, for added dynamism. Here's one we made earlier.**

When you run *X<>Pose*, incoming notes from a MIDI keyboard, say, trigger the associated images and effects. The display uses a resolution of 640 x 480 and 256 colours, which most modern monitors can handle – but the program takes over control of the Mac and you have to stop it to make adjustments. If you are fortunate enough to have a second monitor, you can use one for the display and the other for changing settings – but this is by no means essential. If the monitor can change modes, you can work in a higher resolution and *X<>Pose* will switch to the smaller resolution when running and back again when stopped. To save all the running, starting and stopping as you prepare a set, a **Preview** window enables you to view the images and effects while you're setting up the patch.

X<>Pose is optimised to run on a PowerMac, and the more RAM it has, the more efficiently it works. On a fast machine the images and movies appear instantly in a blur of visual excitement. On slower Macs, however, you may see the images as they are drawn on the screen – for live use, you shouldn't use anything less than a nippy PowerMac.

X<>Pose comes on a CD which contains lots of images and movies – 150Mb

What's MIDI?

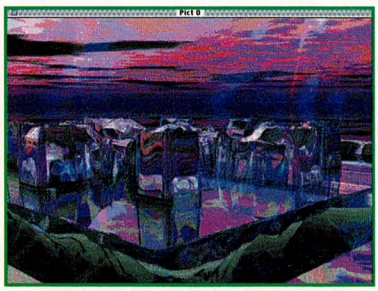
MIDI stands for Musical Instrument Digital Interface. It's a communications standard used to convert musical information such as notes into digital data. These can then be transmitted between synthesisers, enabling them to control each other, and recorded into a computer sequencer, enabling *you* to control them! As MIDI data is digital, its use is not limited to music and it can be used to control a range of applications – such as *X<>Pose*.

Bubbling lava or a close-up of a pint of bitter? Use the QuickTime images included with *X<>Pose* to find out for yourself...

of them – and if you intend to use your own images and movies, remember that visual data takes up more space than audio data, so you'll need a large hard disk to cope with it.

Responsive

X<>Pose responds to data from a variety of sources. As well as direct input from a MIDI keyboard, you can control it from your Mac's keyboard, which is useful for testing purposes if your MIDI keyboard isn't handy. You can also control it from a MIDI sequencer running on the same Mac. However, when we tried the link with *Cubase*, it didn't work. You ought to be able to assign a track to *X<>Pose* in *Cubase*'s **Arrange** page, but the *X<>Pose* driver was greyed out. Steinberg is aware of the problem and we expect it to be fixed by the time you read this – at the very least a free update should be made available.



Unreal of surreal? Dali would be proud of these. Put one of these ice cubes in your gin and tonic and sip slowly...

When it is working, you could feed the output from any track into *X<>Pose* and see what happens... (pause for effect) or you could add a special MIDI track to a song specifically for the music in the song. In other words, you could create a video display to accompany your own material.

If you use a program with digital recording facilities such as *Cubase VST*, you could create a MIDI track to synchronise a display with an audio recording or a song with vocals. Taking this idea a step further, you could create a multimedia presentation using slide-show images and QuickTime movies, triggered by notes which could play music or audio samples – voice-overs and the like. You could also play any part of the presentation at any time and in any order simply by pressing the relevant keys. Going yet another stage further (stop me if I go too far), a system like this could be used in public places such as museums, theatres, shopping malls, music shops and so on. Visitors could create their own music and displays, tied in with the theme of the establishment.

If you're a DJ, you could also use *X<>Pose* with large screen monitors in discos, hanging them from the walls and creating your own displays with the program. If you're in a band and use monitors on stage (okay, these are usually the "big" bands), you could also use it to create displays or link it to pieces of music played via MIDI.

The manual says *X<>Pose* can be used to create CDs containing synchronised audio and visual data – known by various names including Enhanced CD, Mixed Mode, CD Plus and CD Extra. It doesn't tell you exactly how to do it – you'd need a CD writer and a few other bits and pieces – but it says Harman will supply further details. This is a useful addition if you're in a band and are considering making a promo CD.

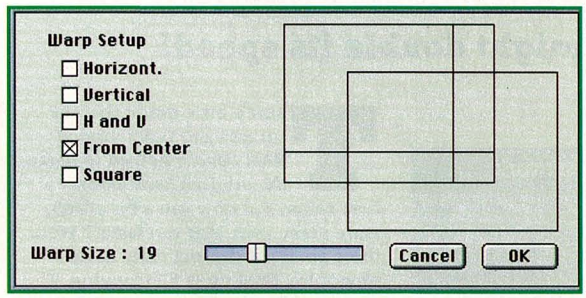
Aside from its practical applications, *X<>Pose* is fun, although its price suggests it was designed for the professional and semi-professional market. The program offers a feast of visual excitement with lots of potential for DJs, performing musicians and multimedia creators – and it guarantees you lots of fun while you're working! It's a unique program which, I'm sure, will be snapped up by many people. Innovation lives. Well done, Steinberg. **MF**

Just for effect

In the current version of *X<>Pose*, effects only work with PICT files – although a future release will enable them to work with movies, too. *X<>Pose* has eight built-in effects:

Do the Clut Dance: Clut (Colour Look Up Table) is used by the Mac to determine which colours are used on screen. Clut Dance has several options which cycle through the colours in various ways, creating a psychedelic effect.
Stop Clut Dance: This stops the Clut Dance and restores the default colours.
Velocity Size: Changes the size of the image according to note velocity or modulation values.
Warp Dance: This effect will gradually fill the image with thin lines or squares.
Fill Screen: This effect fills the screen (or part of it) with the colour of your choice.
Hyper Size: This zooms continuously in and out of the image.
Vortex: This rotates the image either automatically or in response to pitch bend data.
Bombo Blaster: This effect explodes the image into squares that move outwards. You can specify the size of the squares and add other effects such as rotation.

The pack also includes a Plug-In effect called Morphosis which stretches an image using four vector settings.



All the effects have parameters which enable you to customise the way that they work.

X<>Pose

Too expensive, alas, for a toy but it has many practical applications and it's bags of fun to play with if you can afford it.

Features	**79%**
Ease of use	**85%**
Documentation	**92%**
Value for money	**82%**

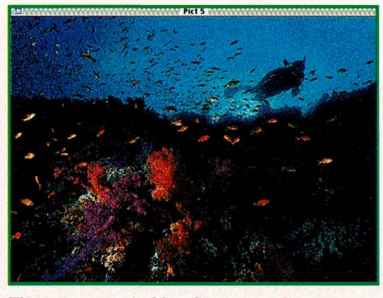
MF rating 85%

Maybe...

Steinberg is considering developing a cheaper, cut-down version of *X<>Pose* which would enable more people to enjoy the delights of visual sampling. Watch the News pages of MACFORMAT or contact Harman Audio – the number's at the top of the page.

There are many surreal, twilight images you can *X<>Pose* your music to. What sort of music goes with this, do you think?

The many images contained in *X<>Pose* give you great variety, but also take up a lot of RAM. Very psychedelic, though.



There are several landscape and seascape images contained on the *X<>Pose* CD. So you can play your music with little fishes.

PRICE	£70.44	**ON SALE**	Now	**CONTACT**	Computers Unlimited on 0181 358 5857	**WEB SITE**	http://www.connectix.com/
MAC	**Processor:** 68030 • **RAM:** 8Mb (12Mb recommended)	**POWERMAC**	**Processor:** any • **RAM:** 8Mb (12Mb recommended)	**REQUIRES**	**System:** 7.0 (7.5.1 recommended) • **Extras:** Internet protocol TCP/IP for faster network copying (optional)		

Speed Doubler 2

From Connectix, the company that brought you a program that really did double your Mac's RAM, comes a program that might double its speed!

Network

Speed Doubler can speed up file-copying from Mac servers. However, you need to have it installed on both the server and client Macs, as well as using the Internet protocol TCP/IP.

System 7.7

System 7.7, due out in mid-summer, will feature much more PowerMac-native code and "multi-threaded" Finder copying, thus duplicating much of what *Speed Doubler* does.

There's little doubt that the success and reputation of *RAM Doubler* helped to make the original *Speed Doubler* a best-seller. But how can a bit of software make your Mac run faster? Well, there are three distinct parts in its repertoire. First up is file-copying. The Mac is legendary for having an antiquated file-handling system, and *Speed Doubler* manages to increase copying performance by an average of 30%, and sometimes even higher.

But that's not all. Currently, when you start copying a file on your Mac, you're very limited as to what else you can do until it's finished. You can't copy another file, launch a program, or empty the Wastebasket. If a program is already open, you can bring it to the fore from the **Application** menu, but that's about it. With *Speed Doubler* installed, all the copying happens in the background, so you're free to perform any task that you could if you weren't copying – and this could save a lot of your time.

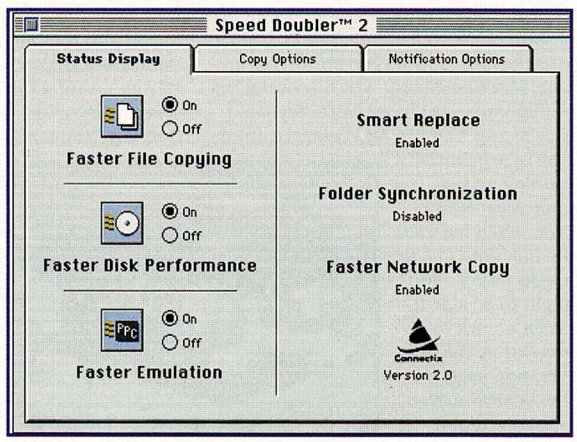
The next part of the program improves disk performance by enhancing your existing disk cache. Your Mac has an area of RAM called a disk cache, which, instead of being used for programs, is used to store the most recently accessed bit of data from disk. Should your Mac need that bit of data again, it will pull it from the fast RAM rather than the hard disk.

Again, *Speed Doubler* simply improves on Apple's System software to make it work faster. Our tests showed that it does speed up some processes, but only those that involved constantly accessing the same data – using databases is a good example. While you should notice an improvement in tasks such as finding or sorting, be aware that this may be in part due to the installer program increasing the size of your disk cache without asking you. Check your **Memory** Control Panel before and after installation to see what's going on.

The last part of *Speed Doubler's* powers only applies to PowerMacs, because it speeds up the way they run non-PowerMac-native software – that is, software not specifically written to work faster on a PowerMac. Unfortunately there are very few programs around without native versions. In fact, probably the only non-native software you still use is System 7, and here it does improve the Finder's responsiveness.

You would be quite justified at this juncture if you were concerned about any utility that plays around with your System software in such a fundamental way. There are tons of compatibility issues when you use *Speed Doubler* in conjunction with other software, not to mention problems with the release of new versions of the System software. For instance, System 7.6 posed major problems for both versions of *Speed Doubler*.

The good news, though, is that Connectix always develops "fixes" quickly – usually before you are even aware of the problem – and then posts them free on its Web site. This is excellent customer service and puts many other companies to shame (see our feature on customer service, starting on page 122).



The original *Speed Doubler* consisted of three Extensions that hid themselves in your System Folder. Thankfully the new version consists of one Extension and one friendly Control Panel to customise it.

So should you buy *Speed Doubler 2?* Well, background copying is surprisingly useful, and the Finder will jump to attention, but while some applications will benefit, don't expect *Photoshop* to manipulate large graphics any faster. Only you can decide whether that's worth the street price of around £50 to you. If you already own the original *Speed Doubler,* though, there's very little incentive to buy this new version – there's little difference in functions or results. You're just left wondering why Apple couldn't have written this into the System software long ago.

DEREK SMITH

Speed test

We speed-tested a standard PowerMac 7200 under four conditions: Extensions on, Extensions off, with *Speed Doubler 1.3.2,* and with version 2.0.1. We then ran three tests: formatting a large document in a non-PowerMac-native word processor, sorting a *FileMaker Pro* database, and copying a 30Mb folder. The results were much as expected, except that *Speed Doubler 2* copied more slowly than the original version! This may be down to the feature that constantly informs you how long the copy has left to perform – it certainly slowed down version 1 of *Speed Doubler,* but there you could turn it off. In *Speed Doubler 2,* you can't.

Tasks on 7200	Format WP	Sort FM Pro DB	Copy 30Mb files
with Extensions on	35 seconds	22 seconds	138 seconds
with Extensions off	30 seconds	22 seconds	125 seconds
with Speed Doubler 1.3.2	24 seconds	20 seconds	94 seconds
with Speed Doubler 2.0.1	22 seconds	20 seconds	111 seconds

Lower figures represent faster times. Which is better. Unless you *like* watching progress bars...

Speed Doubler 2

Better Mac performance, at least at the System and Finder level, if you feel like spending more money – but no marked improvement over *Speed Doubler 1.*

Features	**78%**
Ease of use	**92%**
Documentation	**90%**
Value for money	**77%**

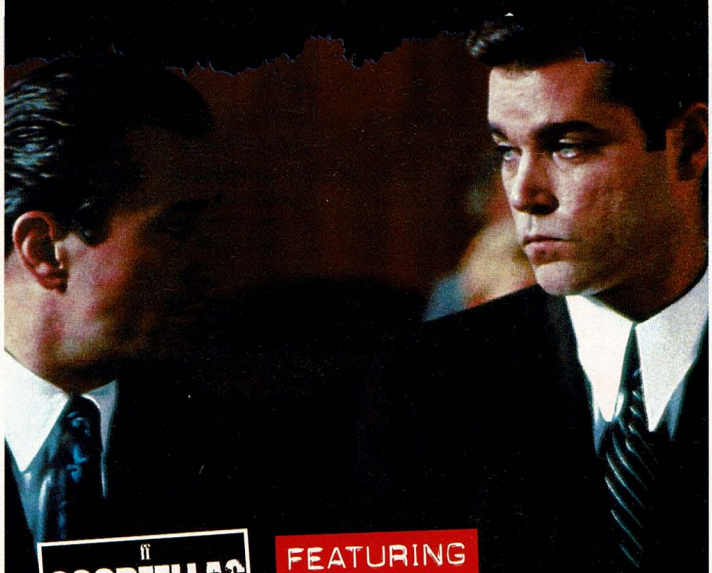
MF rating 80%

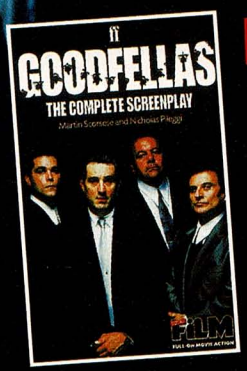
COMING SOON IN...

TOTAL FILM

GOODFELLAS

The complete script – utterly free!





FEATURING

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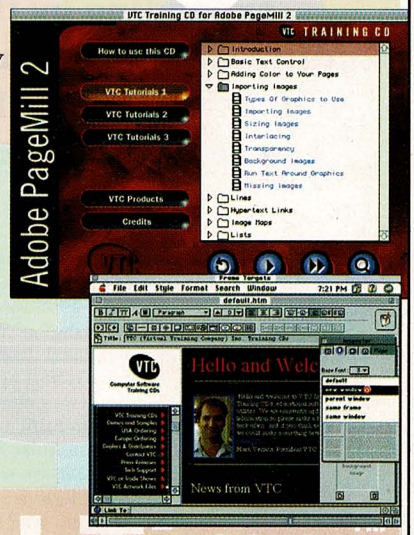

QuickTime

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MAC	**Processor:** 68040 • **RAM:** 8Mb	**POWERMAC**	**Processor:** Any • **RAM:** 8Mb	**REQUIRES**	**System:** 7.1 • **HD space:** 10Mb • **Screen:** 640 x 480 • **Colours:** 256		

FBI Pro 1.2.1

With the World Wide Web expanding by the second, digital art is becoming more widely available – but how do you ensure that your work is "tagged" as your own?

ON THE CD

Fully functional interactive demo.

After a long period of frustrated conjecture, it looks like 1997 could be the year that digital copyright tagging becomes a real deterrent to image piracy. There is still no agreed standard, but proprietary commercial products are emerging to fulfil a very real need. So far, these products are far from foolproof, but *FBI Pro* is still one of the more effective solutions.

In common with most other systems, *FBI Pro* encrypts its so called "fingerprint" in the image pixels themselves, rather than as unique binary code in the image file. This way, even if the image is scanned in from a printed copy, and cropped and resaved in non-Mac formats, the fingerprint still has a reasonable chance of survival.

***FBI Pro* fingerprints can be detected using freeware utilities, including this cut-and-paste *Desktop Detective*.**

FBI Pro strikes a very good balance between overt fingerprint appearance and robustness to image-manipulation – at least compared with Digimarc's "watermark" as seen in *Photoshop 4.0*. *FBI Pro's* fingerprint is indiscernible to the untrained (and trained) eye – so if you have spent many hours getting colour balance and clarity just right in *Photoshop*, you won't then have it ruined by the fingerprint pixel overlay.

Instead of providing a set of form fields to contain ownership details like names and addresses, *FBI Pro* keeps it basic: a pre-set but unique personal code and a user-definable image-specific code. These are embedded into your image files by an automated background conversion process, set up as one or more **Tasks** in the program's main window. The advantage of this is that you can handle bulk fingerprinting – which is necessary since even one 8Mb image file can take up to five minutes or more to process. If you only want to fingerprint a few files now and again, you'd be better off with the £249 regular *FBI* utility.

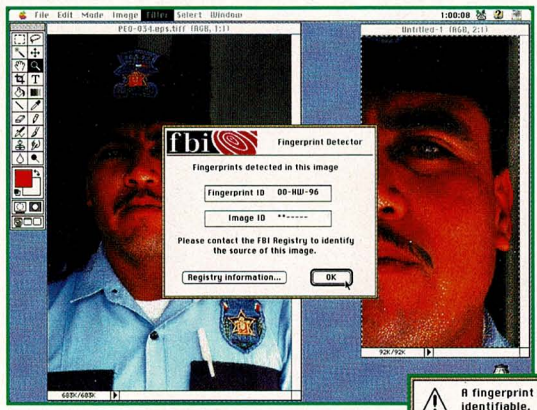
You get very little feedback from the program to tell you what is happening, with no progress bars or animated cursors. In fact, even if you have not returned the software to its **Running** mode after **Pausing**, or forgotten to click on **Enable This Task,** the program appears pretty much the same as when everything is working normally.

And it's a similar story with particular file formats – things appear to be working fine, when in fact they're not. *FBI Pro* reads and writes in a variety of bitmap EPS, TIFF and JPEG files, but cannot make sense of compressed TIFFs or any file using an indexed colour palette. This is a strange omission in *FBI Pro's* import facility, since one of the major concerns is reuse of artwork on the World Wide Web, a medium dominated by GIFs, a format which exclusively uses an indexed colour palette. You don't get an error message when you place these unreadable files in *FBI Pro's* **From** folder – the program just sits there doing nothing.

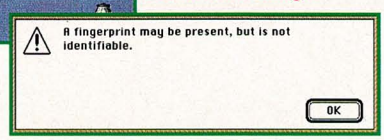
The fingerprint embedded in a picture can be read by *FBI Pro* itself or by a *Desktop Detective* utility or a handy *Photoshop* Plug-in filter, reporting back with the unique IDs found. We found the fingerprint to be fairly resistant to cropping and even severe JPEG compression, but not infallible: you only have to resize an image down and the fingerprint begins to deteriorate. A few *Photoshop* filters later, the fingerprint is unidentifiable.

These limitations would be acceptable for a low-cost utility, but the full *FBI Pro* with dongle protection (that is, with a little plug-in device, without which the program won't work) is a seriously expensive purchase. Sure, if you're an artist or run a digital photo library, you may be happy to pay £1,200 to stop your work being pirated, but *FBI Pro* can't guarantee this. At best, it works like a window lock: it won't prevent a determined thief from breaking in, but may make it inconvenient enough to persuade them to look elsewhere.

ALISTAIR DABBS



***FBI Pro's* digital fingerprint can be detected even from cropped areas of an original image. The crop shown here has lost its superficial "Image ID", but the "Fingerprint ID" is still there, as shown.**



Actions as simple as cropping and resizing can soon lose the fingerprint details in an image.

FBI Pro 1.2.1

A harsh rating, based on harsh pricing for a utility that is still very far from foolproof. But there are few alternatives at present.

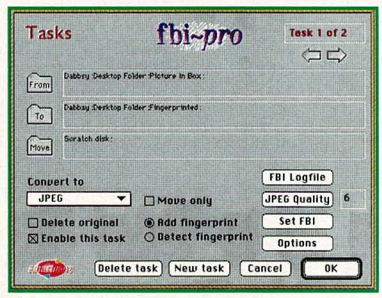
Features	**65%**
Ease of use	**65%**
Documentation	**85%**
Value for money	**25%**

MF rating 50%

Also known as

FBI Pro is now called *SureSign* in America, because a certain large US organisation issued a legal "cease and desist" order to protect its name. Funny, who'd have thought "Pro 1.2.1" would be so touchy...

The details you can embed in a picture are limited to a couple of alphanumeric codes – but the fingerprint is made more robust.



Instead of applying a fingerprint to an image, you cue up Tasks using this dialogue box, seemingly borrowed from High Water's file-format converter, *Interchange*.

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All three CW models have PowerPC 604e processors fitted as standard. The 604e features 64K of on-chip cache and is proven in benchmarks to be 50% faster than the 603e processor clocked at the same speed.

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One thing is certain, whichever CW system you choose you can be sure that you're buying one of the best constructed computers available. As you can see from the inset photo - these systems are built to last. Only the best components are used and all models undergo strict quality control procedures to ensure you happy MacOS computing for years to come.

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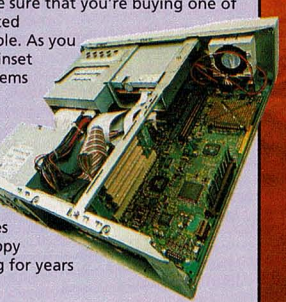
CW's new Mac OS systems offer more performance, more features and better value for your pound than any competing Mac OS systems. Why buy a 603e system when you can have a 604e system for the same money?



Shown with optional 17" monitor. Minimal packaging of software supplied

HOLLYWOOD

THE MULTIMEDIA AUTHORS' DREAM MACHINE

The 'top-of-the-line' CW Mac OS system - and what a system it is. Mini Tower design, 200Mhz 604e PowerPC processor, 5 PCI slots, Zip drive, Miro DC-20 full-motion video capture card and mTropolis multimedia authoring software come together in what must be the best computing package EVER!
Designed to meet the ever growing demands of cross-platform multimedia authoring, this system offers everything you need to create stunning multimedia titles.
The Miro DC-20 is recognised as the best video product ever and offers full-motion, full-screen video capture and playback. Use it to make professional corporate videos, exciting home videos or sophisticated QuickTime productions.
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STANDARD

MTROPOLIS

mTropolis is the revolutionary authoring tool which CW reckons will define a new standard for easy multimedia development. Through its object-oriented approach, this powerful application provides CW with amazing flexibility in the creation of his multimedia applications.
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STANDARD

MIRO DC-20

Full-motion, full-screen video capture and playback. Edit captured movies in Adobe Premiere (LE version included), then save to QuickTime or stripe back out to video tape. This card has become the standard video capture card for Macs and PC's.

THE CW FEATURE CHECK

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200 Mhz 604e

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www.computerwarehouse.co.uk

604e MODELS | INCREDIBLE VALUE | SEE THEM TODAY!!

BEST VALUE - ANYWHERE!

NEW YORK

200 MHZ 604e POWER PC

WOW!

HIGH-END FEATURES AT AN 'ENTRY-LEVEL' PRICE!

You wanted the best - and CW delivers it! Compact, lean and superbly designed - this new Mac OS based personal computer is perfect for office, home and education.
But unlike other 'home office' Mac OS systems which make do with the PowerPC 603e processor - this little number packs the mighty 604e processor - as found in Apple's top of the line 9600 series - and proven to be 50% FASTER THAN A 603e clocked at the same speed! 200Mhz of raw power - in a newly designed slimline desktop enclosure packed with many other standard features such as a fast CD-ROM drive, in-built monitor support and 16-bit stereo sound I/O.

604e PROCESSOR
SUPER-FAST DRIVE
3 PCI EXP. SLOTS
QUALITY BUILT

THE CW FEATURE CHECK

- **100% MAC OS COMPATIBLE**
- 200MHz PowerPC 604e processor
- 64k on-chip cache
- 3 PCI expansion slots
- 16MB RAM memory (3 EDO RAM slots)
- Internal x8 speed IDE CD-ROM drive
- Fast 1.2 Gig Hard Drive
- 3 PCI expansion slots
- SVGA monitor support 2Mb VRAM
- Keyboard, Mouse & Mac OS software

ADD A 300DPI LASER PRINTER FOR.... £199 EX VAT

ADD A 33.6BPS FAX/MODEM FOR.... £99 EX VAT

Shown with optional 17" monitor and Zip drive

200 Mhz 604e

YOU CAN'T BUY BETTER!

£1499

INCLUDES KEYBOARD EX VAT £1056 INC VAT

NEW YORK 16MB RAM 2GIG DRIVE X8 CD

NEW!

Mac OS 100% COMPATIBLE

MANHATTAN

200 MHZ 604e POWER PC

MINI TOWER - LOTS OF POWER!

If you work in the graphics and publishing world - this superb new Mac OS system is for you.
Packing 200MHz of PowerPC 604e power and fitted with 64MB of RAM and a fast 4 Gigabyte Hard Drive as standard, this new high-value, high-performance system is ready to run power applications such as Adobe PhotoShop, Macromedia Freehand and Quark Xpress 'straight out-of-the-box'. The superb new Mini Tower design also deserves praise. It has beautiful clean lines, offers a wealth of expansion and storage options and comes with 5 industry standard PCI slots as standard.
Wait no longer. It doesn't come any better than this.

THE CW FEATURE CHECK

- **100% MAC OS COMPATIBLE**
- 200MHz PowerPC 604e processor
- 64K on-chip cache
- 2Mb VRAM
- Fast 4 Gig Hard Drive
- SVGA monitor support (2MB VRAM)
- 64k on-chip cache
- 64MB RAM (3 EDO slots)
- Internal x12 speed IDE CD-ROM
- 5 PCI expansion slots
- Keyboard, Mouse & Mac OS

ADD A 300DPI LASER PRINTER FOR.... £199 EX VAT

ADD A 33.6BPS FAX/MODEM FOR.... £99 EX VAT

CW RECOMMENDED

Shown with optional 17" monitor and Zip drive

200 Mhz 604e

YOU CAN'T BUY BETTER!

£1699

INCLUDES KEYBOARD EX VAT £1996 INC VAT

MANHATTAN 64MB RAM 4GIG DRIVE X12 CD

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Shown with optional 20" monitor

9600 SERIES

STUNNING SPEED!!

WOW! SEE IT AT CW TODAY!

The Power Mac 9600/200 and 9600/200MP represent Apple's top-of-the-line in speed performance and expandibility. Ideal for publishers, graphics and multimedia professionals.

- One or two 200MHz 604e
- 32Mb RAM (exp to 768Mb)
- 512K Level 2 Cache
- Internal 4GB AV hard drive
- 12x speed CD-ROM
- 6 PCI expansion slots
- Two front accessible bays
- Ethernet
- 4MB IMS accelerated graphics card
- Apple Extended Keyb

YOU CAN'T BUY BETTER!

200Mhz 2 X 604e	9600/200MP 32/4 x12 CD	200Mhz 604e	9600/200 32/4 x12 CD
£3199		£2499	
£3759 INC VAT		£2936 INC VAT	

SAVE £££'S! SAVE £££'S!

THE NEW 8600/200

SEE IT AT CW TODAY!

IT'S THE BEST NEWS OF '97 SO FAR - AND IT'S AN APPLE!

If your profession demands a high performance, expandable computer that's optimised to make complex work easy, choose the CW recommended 8600/200 system. You get in-built video-in and video-out capabilities in an innovative new design and many other features which make it the Mac of choice for in-house publishing, media authoring and technical applications.

- 200MHz PowerPC 604e processor
- 32MB RAM - expandable to 512MB
- 256K level 2 cache on a DIMM
- 12x speed CD-DRIVE
- Built-in Iomega Zip Drive + 1 CART
- Extra front accessible storage bay
- 24-bit composite and S-video input and output
- Processor on card for upgradability
- 2GB SCSI internal hard drive
- In-built graphics acceleration
- In-built Ethernet
- Three industry standard PCI slots
- Additional 3 storage expansion bays

INCLUDES APPLE EXTENDED KEYBOARD A £120 VALUE!

200Mhz 604e **£2149** 8600/200 32/2 GB X12CD ZIP

INC APPLE EXT KEYB EX VAT £2525 INC VAT

SAVE £££'S!

ALL YOU NEED TO KNOW ABOUT PROCESSORS!

WHICH PROCESSOR?

CW RECOMMENDED

It used to be easy, if you wanted the fastest Mac, all you had to do is look for the Mhz rating and go for the higher rating. Unfortunately things aren't quite so easy nowerdays what with 604's, 601's, 604e's and 603e's. You can no longer reliably compare a computers performance by just looking at the speed of the processor alone. You need to know which processor and how much on-chip (Level 1) and Level 2 cache there is. (Plus of course the speed of the hard drive, how much RAM is present etc.) The 603 family's and 604 family's are very different and you cannot directly compare MHz for MHz. Another important factor is the speed of the main board bus. Modern processors (604, 603e etc) run faster than the main board speed by using clock multiplies. For example the 9500/200 uses a Tsunami based board design which can run at bus speeds up to 50Mhz. Slot in a 604e, clock it at 4x and you get 200Mhz. A PowerTower by comparison uses a Catalyst board design which runs at a 60Mhz bus speed. Slot in a 604, clock it at 3x and you get 180Mhz. The Bus speed is an important factor in comparing a computers actual performance. MacUser recently did a test with a 240Mhz 604e on a 48Mhz bus and the same chip on a 60Mhz bus and found that the latter gave a significant performance increase. Because of all this clock doubling, tripling and quadrupling, the amount of Level 2 cache comes in to play. The processor uses the Level 2 cache (very high speed memory) while waiting for the board bus. The higher the clock multiply, the larger the cache required. For example the 9500/200 has a 512K of Level 2 cache, the 8500/180 has 256K and most of its performance gains are as a result of this and not necessarily the extra 20Mhz.

PowerPC 601
- The original PowerPC processor. Single 32-Kbyte unified (Lev 1) cache. 64-bit data bus, built-in FPU, Superscaler-3 instructions per clock.

PowerPC 603
- Used in PowerBooks and Performas. Separate 8-Kbyte instruction and data caches (Lev 1) , built-in FPU

PowerPC 603e
- As above but with separate 16-Kbyte instruction & data caches (Lev 1)

PowerPC 603e-200
- As 603e but with up to 6x clock multiplier support.

PowerPC 604
- Separate 16-Kbyte instruction & data caches (Lev 1). 4 instructions per clock.

PowerPC 604e
- Used in PowerMac 9500/200 etc, separate 32-Kbyte instruction & data caches (Lev 1). 4 instructions per clock.

BUS SPEED???
WHICH PROCESSOR?
CLOCK SPEED??

APPLE POWER MACINTOSH

"Willing & able with a CW table!"

FASTER

	P.MAC 4400/160	P.MAC 4400/200	P.MAC 7300/166	P.MAC 7300/200	P.MAC 8600/200	P.MAC 9600/200	P.MAC 9600/200MP
PROCESSOR PowerPC	160MHz 603e RISC Integral FPU 32K on-chip cache	200MHz 603e RISC Integral FPU 32K on-chip cache	166MHz 604e RISC Integral FPU 32K on-chip cache	200MHz 604e RISC Integral FPU 32K on-chip cache	200MHz 604e RISC Integral FPU 64K on-chip cache	200MHz 604e RISC Integral FPU 64K on-chip cache	2 x 200MHz 604e RISC Integral FPU 64K on-chip cache
UPGRADABILITY	No	No	Via CPU daughtercard	Via CPU daughtercard	Via CPU daughtercard	Via CPU daughtercard	Via CPU daughtercard
LEVEL 2 CACHE	256K Level-2 Cache optional	256K Level-2 Cache optional	256K Level-2 Cache standard	256K Level-2 Cache standard	512K Level-2 Cache standard	512K Level-2 Cache standard	512K Level-2 Cache standard
EXPANSION	3 PCI Slots	3 PCI Slots	3 PCI Slots	3 PCI Slots	3 PCI Slots	6 PCI Slots	6 PCI Slots
MEMORY	16Mb RAM EDO RAM 160 Mb max	16Mb RAM EDO RAM 160 Mb max	16Mb RAM DIMMs 256 Mb max	32Mb RAM DIMMs 256 Mb max	32Mb RAM DIMMs 512 Mb max	32Mb RAM DIMMs 768 Mb max	32Mb RAM DIMMs 768 Mb max
GRAPHICS	1MB VRAM 4Mb Max	1MB VRAM 4Mb Max	2MB VRAM 4Mb Max	2MB VRAM 4Mb Max	2MB VRAM 4Mb Max	4MB IMS Twin Turbo Graphics	4MB IMS Twin Turbo Graphics
HARD DRIVE, CD-ROM ETC.	1.2GB Drive x8 speed CD-ROM	1.2GB or 2GB Drive x8 speed CD-ROM	2GB Hard Drive x12 speed CD-ROM	2GB Hard Drive x12 speed CD-ROM	2GB AV Hard Drive x12 CD-ROM, Zip	4GB AV Hard Drive x12 speed CD-ROM	4GB AV Hard Drive x12 speed CD-ROM
OTHER FEATURES	Desktop	Desktop Optional Ethernet	Ethernet Video IN	Ethernet Video IN	Ethernet Video IN/OUT	Ethernet 2 Front Drive Bays	Ethernet 2 Front Drive Bays

POWER MACINTOSH
Power Macintosh computers were the first Apple computers to use the RISC-based PowerPC processor and now incorporate the industry-standard PCI (Peripheral Component Interconnect) bus architecture, they maximise the performance capabilities of their underlying RISC architecture for even faster graphics acceleration and network performance.

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"I need the speed of a PowerPC - and when I've got it I jump for glee!"

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POWER MAC 4400 — 200 Mhz 603e PROCESSOR

GREAT VALUE POWER MACINTOSH!

This great new Power Macintosh is ready to slot right into your business world. A Speedy 200MHz PowerPC 603e processor takes care of the number crunching and there's plenty of expansion options with 2 in-built PCI slots. It's got a great turn of speed as well with MacUser magazine rating the old 166MHz version considerably faster than a 7200/90 in real world tests, (Heavens knows what they'll make of this new 200MHz version!).
Good speed, good expansion and the Apple brand of quality - what else do you need?

- 200Mhz PowerPC 603e
- 16Mb RAM (exp to 96Mb)
- Internal 1.2GB hard drive (or optional 2GB drive
- 8x speed CD-ROM drive
- Two PCI expansion slots
- On-board video support (1Mb VRAM)
- Mouse and Keyboard included

Spend an extra £100 and add these great features:

- 2GB Hard Drive
- 256K Level 2 cache
- 2MB VRAM
- Ethernet networking capability

NEW!

200Mhz 603e — 4400/200 16/2 CD E/net — WOW!

£999 — £1174 INC VAT

SAVE £££'S!

200 Mhz 603e — £899 — POWERMAC 4400/200 16/1.2GB X8CD

EX KEYBOIARD & VAT £1056 INC VAT

Shown with optional 17" monitor

UMAX — SAVE £££'S!

NEW!

3 SUPERB UMAX TOWERS

The Umax Pulsar Towers are perfect for those users who require good speed and plenty of expansion possibilities. Choose 200Mhz 604 or 225Mhz 604e power with Dual Processor capability and expandable up to 1040Mb of RAM. You also get 5 expansion bays and 6 PCI slots, x8 speed CD.
See them @ CW!

- Attractive, modern case design with unique swing-door
- 200Mhz 604 or 225Mhz 604e
- 512k Level 2 Cache
- 16Mb RAM (exp to 1040Mb
- Fast SCSI interface
- Dual Processor Capable
- LocalTalk & Ethernet
- 6 PCI expansion slots
- Interleaved memory
- x8 speed in-built CD-ROM
- 5 expansion bays
- **IN STOCK @ CW NOW!!**

SAVE ££'S @ CW's!

6 PCI EXP. SLOTS
MAX 1GB OF RAM
UPGRADABLE
2 GREAT MODELS
SEE THEM TODAY!!

200 Mhz 604e — PULSAR 2000 32/2GB CD — £BEST — PRICE IN THE UK

225 Mhz 604e — PULSAR 2250 32/2GB CD — £BEST — PRICE IN THE UK

NEW!

P.MAC 7300 SERIES

THE POWER MAC OFFICE STANDARD

NEW!

MICROSOFT OFFICE 4.2

The Power Macintosh 7300 Series are built around super-speedy 166Mhz and 200Mhz versions of the PowerPC 604e processor plus 3 high-performance PCI expansion slots.
In addition, these superb Macs feature great multimedia and video-conferencing facilities with both S-video and Composite video inputs.
AND for a limited time only, these Macs comes complete with Microsoft Office 4.2.1!!

- 166 or 200MHz PowerPC 604e
- 16Mb or 32Mb RAM (expandible to 512Mb)
- 256K Level 2 cache fitted as standard
- Internal 2GB hard drive + extra 3.5" expansion bay
- 12x speed CD-ROM drive
- Three PCI expansion slots
- 2Mb VRAM (exp to 4Mb)
- Composite and S-video video input (Capture QuickTime!)
- Apple Keyboard included
- **Microsoft Office Included!**

FREE WITH THIS MAC

200Mhz 604e — 7300/200 32/2 X12CD — £1999 — £2349 INC VAT

SAVE ££'S!

LOWEST PRICE IN UK!

166 Mhz 604e — £1649 — POWERMAC 7300/166 16/2GB x12CD

EX KEYBOIARD & VAT £1938 INC VAT

HOT PRODUCT!

Shown with optional 17" monitor

APUS

GREAT VALUE & PERFORMANCE

All Umax Apus systems 100% MacOS compatible and run all Macintosh applications. They are also upgradable via a cpu swap to 240MHz! And they come with ClarisWorks v4, and FWB disk utilities.

These great new systems also offer all the benefits of the Apple Mac OS combined with excellent performance. The Apus 2000 comes equipped with a PowerPC 603e processor which can be specified in 160MHz flavour while the tower Apus 3000 can be had as a 200MHz or even a super-speedy 240MHz machine delivering a real alternative to the Apple 6400. All have their processors mounted for easy upgradability - to 240MHz!!

160 Mhz 603e — APUS 2000 16/1.2 X8 CD — £775 — £911 INC VAT

200 Mhz 603e — APUS 3000 16/2.1 X8 CD — £1099 — £1291 INC VAT

240 Mhz 603e — APUS 3000 16/2.1 X8 CD — £1499 — £1761 INC VAT

NEW!

Shown with optional 17" monitor

PAGE 5

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VOTED 1995 AND 1996 MacUser RESELLER OF THE YEAR

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IN STOCK NOW!! LOWEST UK

OFFER MUST END SOON - LAST FEW LEFT!

WOW!

PERFORMA 6320

THE BEST VALUE PERFORMA EVER!

The Performa 6320 delivers quite astonishing CW value and is recommended for home and education users who find the all-in-one approach of the 5320/5400 too limiting. With this Mac you can take advantage of a larger screen & choose from a range of options including in-built TV Tuner, MPEG Video Card, Modem etc. In addition you also get FREE a fantastic software bundle packed with great games and education titles. CW says "This is the best value - EVER!!"

14" MONITOR
14.4 MODEM
COLOR PRINTER
KEYBOARD
APPLE MOUSE
COMPLETE SYSTEM!!

System components may differ from those illustrated

120Mhz 603	6320/120 8/1.2GB CD
£669	
£786 INC VAT	

- 120Mhz PowerPC 603e processor
- 8Mb RAM (expandable 64Mb)
- 1.2GB internal hard drive
- Optional Video IN capability
- Built-in x4 speed CD-ROM drive

THE COMPLETE SYSTEM

Includes all cables!

YOU GET ALL THIS FOR LESS THAN £1000!!

- 6320/8/1.2CD as described above with CW keyboard & mouse
- CW 14" quality color monitor
- CW 14.4 'Internet-ready' external FAX/DATA modem
- CW A4 COLOR plain paper printer

FREE SOFTWARE

SAVE £££'S!

120Mhz 603 **£899** INC KEYB & MONITOR EX VAT £1056 INC VAT

LIMITED STOCKS 6320 8/1.2CD COMPLETE SYSTEM!!

DISNEY PLUS 3 SOFTWARE PACK INCLUDED - FREE!!

INSTALLED ON HARD DRIVE: At Ease, Claris Works, ClickArt, Hypercard Player, MacGallery, Mavis Beacon Teaches Typing, Millies Math House, Spin Doctor, SuperMaze Wars, Thinking Things 2

INCLUDED ON CD-ROM: Dorling Kindersley 'The Way Things Work', Grolliers Encyclopedia, Making Music, Myst, Rednex, Rock, Rap & Roll, Daedelus Encounter, Lion King Story Book, Aladdin Activity Centre, Toy Story (Preview). PLUS Apple Internet Connection Kit!

EDUCATION SPECIAL - PERFORMA 6320 TEN PACK!

10 PACK

Attention all Schools, Colleges and Educational Establishments.....

TEN 6320 MACS FOR £5999

EX VAT £7049 INC VAT

LIMITED STOCKS

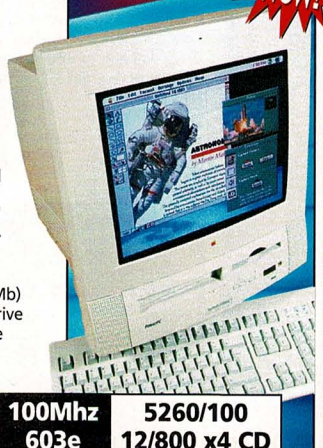
10 PACK

5260/100

AMAZING VALUE

LIMITED STOCKS!!

WOW!



TOP CW VALUE!!

This must be one of the best values around! How about an all-in-one Macintosh complete with 14" monitor, keyboard, mouse and CD-ROM for less than £800!
Yes you read it right - LESS THAN £800!

- 100Mhz PowerPC 603e
- 12Mb RAM (exp to 64Mb)
- Internal 800MB hard drive
- x4 speed CD-ROM drive
- Integral a 14" monitor with 1,000s of colors
- Free software
- Optional MPEG Card
- Optional Moden
- Optional TV/Video IN

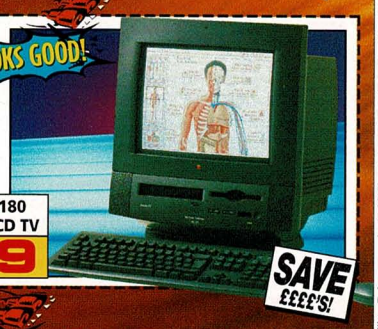
100Mhz 603e	5260/100 12/800 x4 CD
PRICE REDUCTION!	£799
	£939 INC VAT

5400 SERIES

BEST UK PRICE!

THE ALL-IN-ONE MEGA-MACS!

LOOKS GOOD!



With its state-of-the art RISC-based processor and advanced multimedia capability, the all-in-one Apple Performa 5400s are CW ready to inspire your creativity and boost your productivity. And the 180 model comes in 'living-room black' like your tele!

- 160 or 180Mhz PowerPC 603e
- Internal 1.6GB hard drive
- 15" monitor
- TV Tuner (180 only)
- 28.8 FAX/Modem
- FREE SOFTWARE loads of CD's and software
- 16Mb RAM (exp to 136Mb)
- x8 speed CD-ROM drive

160Mhz 603e	5400/160 16/1.6 CD
£1199	
£1409 INC VAT	

180Mhz 603e	5400/180 16/1.6 CD TV
£1399	
£1643 INC VAT	

FREE SOFTWARE

SAVE £££'S!

6400 SERIES

LOOKS GOOD!

MINI TOWERS - BIG PUNCH!

Fast, sleek and lots of expansion options. The 6400 comes with a choice of 180 or 200Mhz 603e processors. In addition you get PCI slots, multimedia capability thanks to 16-bit stereo SRS™ 3D Surround Sound and in-built 16-bit color display support.

- 180 or 200Mhz PowerPC 603e
- 1.6GB or 2.4GB hard drive
- 1MB VRAM
- 28.8 FAX/Modem
- Optional TV tuner
- FREE SOFTWARE
- L2 cache included on 200Mhz
- 16Mb RAM (exp to 136Mb)
- x8 speed CD-ROM drive

180Mhz 603e	6400/180 16/1.6 CD 28.8	6400/200 16/2.4 CD 28.8
	£1049	£1199
	£1233 INC VAT	£1409 INC VAT

FREE SOFTWARE

BEST UK PRICE!

Shown with optional monitor

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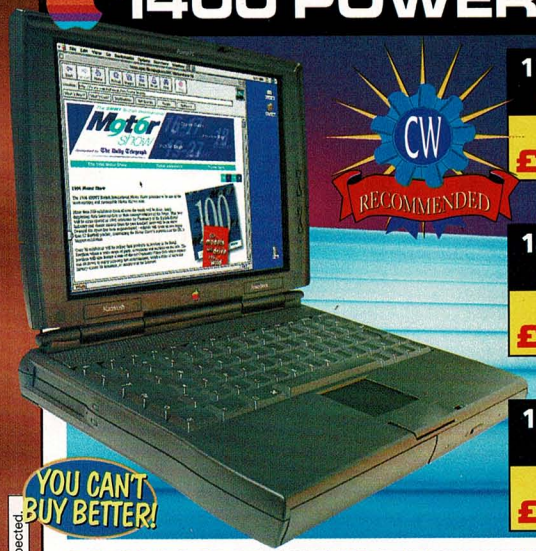
FREE CASE & MULTIMEDIA CDs!!

1400 POWERBOOKS

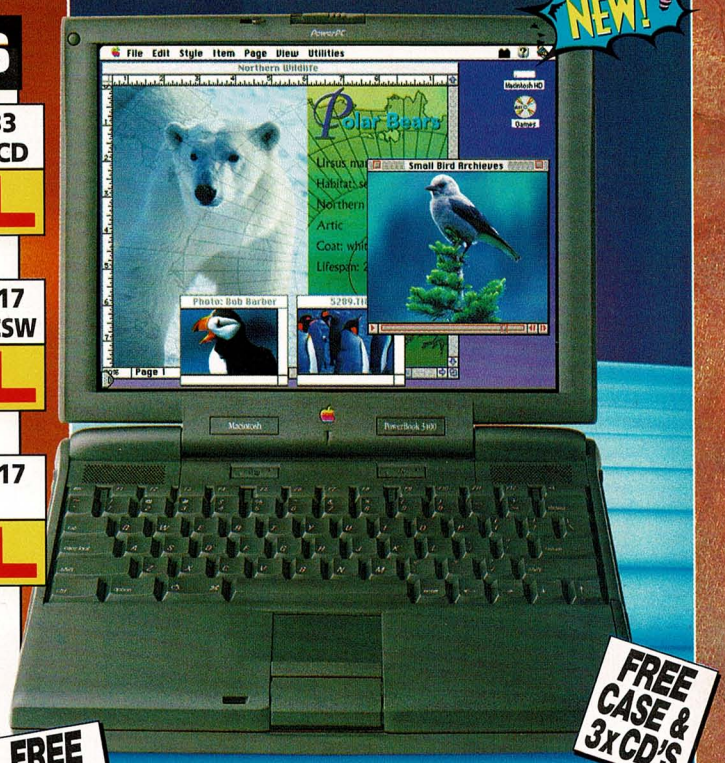


CW RECOMMENDED

117Mhz 603e	1400C/133 16/1.3GB CD
£CALL	FOR BEST UK PRICE
180Mhz 603e	1400CS/117 16/750CD/CSW
£CALL	FOR BEST UK PRICE
180Mhz 603e	1400CS/117 12/750
£CALL	FOR BEST UK PRICE

YOU CAN'T BUY BETTER!

NEW!



FREE CASE & 3x CD'S

HIGH-VALUE NOTEBOOKS

The Macintosh PowerBook 1400 is ideal for CW who demands exceptionally high performance. These superb notebooks come with nifty PowerPC 603e processors, PCMCIA slots, GSM connectivity option and, for the first time in an Apple notebook, a built-in CD-ROM drive bay. Their built-in PCMCIA slots make it easy to add storage, wired or wireless networking and other capabilities. There's even an expansion bay for adding a 3.5" device such as optical drive etc. Long battery life and software compatibility with Windows and DOS files make these new CW favourites the best in high-value portable technology.
Try one yourself at CW today!!

FREE AT CW!! PADDED CARRY CASE 3 GREAT CD TITLES!

FREE CASE & 3x CD'S

3400 SERIES

SUPERB NEW FEATURES

High performance and affordability are the key words here for Apple's new top-of-the-line PowerBooks. They sport the fastest processors ever offered in a PowerBook computer - rivalling desktop performance and have loads of great features in-built.
For example these systems' multimedia capabilities allow mobile professionals to create and present media-rich presentations. 16-bit video out, video-in with zoomed video and a unique 4-speaker sound system.
CW loves them - you'll love them!

180Mhz 603e	3400C/180 16/1.3GB CD
£CALL	FOR BEST UK PRICE
200Mhz 603e	3400C/200 32/2GB CD
£CALL	FOR BEST UK PRICE
240Mhz 603e	3400C/240 32/3GB CD
£CALL	FOR BEST UK PRICE

YOU CAN'T BUY BETTER!

APPLE POWERBOOKS

FASTER

POWER BOOKS
Popular and award winning - the Apple range of PowerBooks just keeps on getting better. All these models feature PowerPC processors and have many in-built features so you don't have to spend money to get the capabilities you need.
All include Apple Internet Access software, Apple Remote Access and more. - CW loves 'em!

	POWERBOOK 1400CS/117	POWERBOOK 1400C/133	POWERBOOK 3400C/180	POWERBOOK 3400C/200	POWERBOOK 3400C/240
PROCESSOR PowerPC	117MHz 603e RISC Integral FPU 32K on-chip cache	133MHz 603e RISC Integral FPU 32K on-chip cache	180MHz 603e RISC Integral FPU 256K Level II cache	200MHz 603e RISC Integral FPU 256K Level II cache	240MHz 603e RISC Integral FPU 256K Level II cache
MB OF RAM	12 or 16MB RAM Exp. to 56MB	16MB RAM Exp. to 56MB	16MB RAM Exp. to 144MB	32MB RAM Exp. to 144MB	32MB RAM Exp. to 144MB
DISPLAY	11.3" backlit dual-scan 800 x 600 pixel SVGA color	11.3" backlit dual-scan 800 x 600 pixel SVGA color	12.1" backlit active matrix SVGA 800 x 600 color	12.1" active matrix SVGA 800 x 600 color	12.1" active matrix SVGA 800 x 600 color
CD-ROM	Option	Standard	6x speed (most)	6x speed Standard	12x speed Standard
EXPANSION	PC Card slot for 2 x Type II or 1 x Type III card. Internal expansion slot	PC Card slot for 2 x Type II or 1 x Type III card. Internal expansion slot	PC Card slot for 2 x Type II or 1 x Type III card. Expansion storage bay	PC Card slot for 2 x Type II or 1 x Type III card. Expansion storage bay	PC Card slot for 2 x Type II or 1 x Type III card. Expansion storage bay
NETWORKING	LocalTalk, IR connection	LocalTalk, IR connection	LocalTalk, IR connection Ethernet (most)	LocalTalk, IR connection Ethernet (most)	LocalTalk, IR connection Ethernet (most)

190/66 POWERBOOK

LIMITED STOCKS VERY FEW AVAILABLE!!

Where else can you get a genuine Apple PowerBook for less than £870? Only CW offers you the chance of Apple mobile computing at such a crazy low price. The PowerBook 190/66 'international' version offers a speedy 66/33MHz 68LC040 processor (ideal for word processing, spreadsheet and general office tasks), 8 MB of RAM, (expandable) and a 500Mb hard drive. Mac computing on the move has never been so affordable!!

- 66/33MHz 68LC040 Motorola processor
- 8MB RAM (Expandable to 36MB)
- 500MB Hard Drive
- 2 x PC card slots for networking, internal modems etc.
- 9.5" backlit dual-scan mono LCD screen
- **FREE Padded Case and 3 great CD-ROM titles!**

INTERNATIONAL VERSION

FREE CASE & 3x CD'S

WOW!

SAVE ££'s @ CW!

190/66 8MB RAM	£869 EX VAT £1021 INC VAT
190/66 8MB RAM 500MB HARD DRIVE	

SCOOP PURCHASE! LIMITED STOCKS!

All products and offers subject to availability. **Prices exclude VAT** unless otherwise stated. E&OE. Apple, Power Macintosh are trademarks of Apple Computer. All other trademarks respected.

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LAST FEW LEFT HURRY AND GRAB YOURS NOW!

IN STOCK NOW!! GREAT BUNDLES 604e MODELS INCREDIBLE VALUE SEE THEM TODAY!!

Shown with optional 17" monitor. Casing may differ.

LOOKS GOOD!

POWER 100

100 Mhz 601 — POWER 100 16/1G, CD

£799

£939 INC VAT

INCREDIBLE VALUE
A REAL 'PRO' MACHINE!

Packing 100Mhz of tried and tested PowerPC 601 power and coming complete with 8Mb RAM, 1 Gigabyte Hard Drive and internal CD-ROM drive, this superb machine bristles with the kind of features busy professionals need to get the job done. But you had better hurry as 'ol CW only has limited stocks of this incredible value!

SAVE £££'S!

- 100Mhz PowerPC 601 processor
- 32k on-chip cache + 256K Level 2 cache
- 3 NuBus expansion slots
- 8Mb of on-board RAM
- 1Mb VRAM
- Internal CD-ROM drive
- 1 GIG Hard Drive ■ Lots of expansion bays
- Ethernet networking as standard

FREE SOFTWARE!

- Claris Works v4
- Now Contact - Up to date
- Now Utilities 5.01
- 250 Bitstream Type 1 fonts
- FWB HD Toolkit
- FWB CD Toolkit
- Grolier Encyclopedia

Contents of bundled software may change

100 Mhz 601 — £779 — POWER 100 8MB RAM, 1 GIG, CD

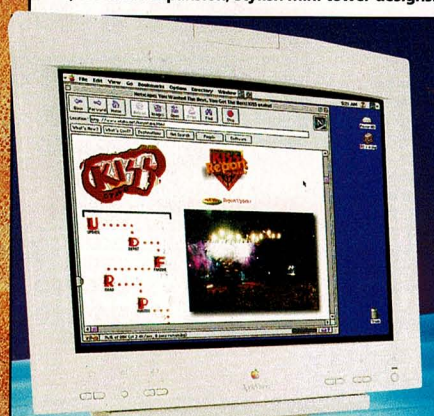
INCLUDES KEYBOARD EX VAT £915 INC VAT

POWER BASE 603EV

PERFECT IN THE HOME
IDEAL IN THE OFFICE

BUY ONE TODAY! NEW!

Here they are! The superb new MacOS compatibles from those nice people who brought you the PowerTower Pro!. These CW stunning systems make excellent use of the PowerPC 603ev RISC processor to provide unmatched performance for Home Office, Education and Business users alike. Choose from low-profile desktops or, for more expansion, stylish mini tower designs. Either way you get an upgradable CPU card so that your computer can grow as you do, three PCI slots as standard for expansion capabilities like home video editing or fast networks and accelerated Video Graphics for realistic gaming and modelling. (MacWeek said of the video "delivers exceptional graphics performance, outscoring every Apple system with built-in video, even the new Power Mac 8500/180"). More bang for the buck than any competing systems!!



- Choose from 180, 200 or 240MHz 603ev
- CPU upgradability via CPU daughter card
- 256Kb Level-2 cache
- 16Mb RAM, exp to 160Mb
- 3 PCI expansion Slots
- 1.2 GIG hard drive
- 2Mb Accelerated graphics, SVGA & Mac 15-pin Res. from 640 x 480 to 1280 x 1024
- x8 speed CD-ROM
- 2 spare bays for Zip, Jaz CD Writer (mini tower)

PLUS - Over £500 of FREE SOFTWARE

Free software includes * FWB Hard Disk Tool Kit PE * FWB CD-ROM Tool Kit * ClarisWorks * Grolier's Multimedia Encyclopedia * Now Contact * Now Up-to-Date * Nisus Writer [Trial] * Intuit's Quicken SE * America Online [Trial] * Compuserve [Trial] * 250 Bitstream Type 1 and Type 2 fonts **AND MORE!!**

score card MacWEEK

WOW!

"(POWERBASE OFFERS) TOP OF THE LINE PROCESSOR AND GRAPHICS PERFORMANCE AT BARGAIN-BASEMENT PRICES" – MacWEEK Magazine ONLINE AUG 96

"THE CASE FOPR POWERBASE IS OVERWHELMING...FOR GENERAL OFFICE USE, THE POWERBASE SIMPLY OFFERS MORE FOR LESS." – MacWEEK Magazine

CW RECOMMENDED

Shown with optional 17" monitor, Keyboard Casing may differ.

200 Mhz 603EV — £1099 — POWERBASE 200 16/1.2G X8 CD-ROM

EX KEYBOARD EX VAT £1291 INC VAT

POWER CHART

"Willing & able with a CW table!"

HOT PRODUCT!

"They cost less, they do more, it's that simple!"

THE REDDER THEY GET, THE FASTER THEY GET...THE REDDER THEY GET, THE FASTER THEY GET...THE

	POWER 100	POWER BASE	POWER CENTER	POWER BASE
PROCESSOR PowerPC	100MHz 601 RISC Integral FPU 32K on-chip cache	180MHz 603e RISC Integral FPU 32K on-chip cache	132MHz 604 RISC Integral FPU 32K on-chip cache	200MHz 603e RISC Integral FPU 32K on-chip cache
UPGRADABILITY	-	Via CPU daughter card	Via CPU daughter card	Via CPU daughter card
LEVEL 2 CACHE	256K Level-2 Cache standard	256K Level-2 Cache standard	512K Level-2 Cache standard	256K Level-2 Cache standard
EXPANSION	3 NuBus Slots	3 PCI Slots	3 PCI Slots	3 PCI Slots
MEMORY	8 or 16Mb RAM SIMMS 256Mb max	16Mb RAM DIMMS 160Mb max	16Mb RAM DIMMS 512Mb max	16Mb RAM DIMMS 160Mb max
GRAPHICS	1MB VRAM 4Mb Max	2MB VRAM	1MB VRAM 4Mb Max	2MB VRAM
CD-ROM	CD-ROM	x8 speed CD-ROM	x4 speed CD-ROM	x8 speed CD-ROM
CASING	Mini Tower	Low Profile Desktop or Mini Tower	High Profile Desktop	Low Profile Desktop or Mini Tower

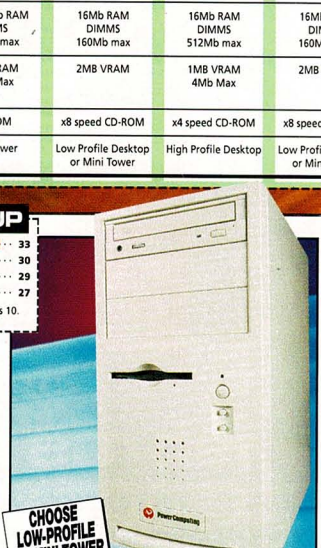
WHO ARE POWER COMPUTING?

The Power Computing Corporation was the first company to offer Mac-compatible systems and the original Mac OS licensee. Chosen by Apple in 1993 to create the first Mac clones, Power Computing was created with but a single focus in mind - to offer more choice, more service and more affordability to the Macintosh market. And they succeeded! With the Power 100, PowerWave, PowerCenter, PowerTower, PowerTower Pro and new PowerBase machines, they re-defined the term 'value for money'. If you're going to buy a clone, and why shouldn't you? - you just can't buy better!!

*LONGER BARS ARE BETTER

HOW POWER STACKS UP

Longer bars are better. Results comparable to 6100/66 which scores 10. (Processor Score) Copyright MacUser (US).



CHOOSE LOW-PROFILE OR MINI TOWER

180 Mhz 603EV — POWERBASE LP 16/1.2G, X8 CD, £999 — £1174 INC VAT

240 Mhz 603EV — POWERBASE 16/1.2G, X8 CD, £1299 — £1526 INC VAT

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FAX NOW WITH YOUR REQUIREMENTS & CW WILL FAX BACK A SUPER-LOW QUOTE IN A FLASH!
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FASTEST MAC OS | GREAT BUNDLES | 604e MODELS | INCREDIBLE VALUE | SEE THEM TODAY!!

POWER TOWER PRO

FASTER AND BETTER THAN THE REST!!

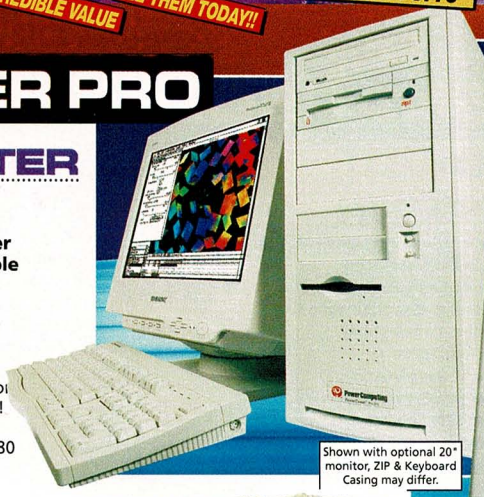
With a clock speed of 225MHz, the PowerTower Pro is not only the fastest and most expandable MacOS system ever designed, but also the fastest single processor desktop in the world!

- 225MHz 604e
- 16Mb RAM, exp 1 GIG
- 2 GIG AV hard drive
- 6 PCI Slots
- 9 bays (7 front accessible)
- 1Mb Level-2 cache
- Interleaved memory
- x8 speed CD-ROM
- Dual Processor Suppo
- Dual SCSI 10MB/sec!!

PLUS - 8Mb Twin Turbo graphics card included!
Fastest graphics card on the market - up to 1920 x 1080 in millions of cols!

PLUS - Over £500 of FREE SOFTWARE
Free software includes Speed Doubler, FWB Hard Disk Tool Kit PE, FWB CD-ROM Tool Kit, Claris Works, Now Utilities, Now Contact, Now Up-To-Date, US Atlas, The Animals, World Atlas, Grolier's Encyclopedia, 250 Bitstream Type 1 fonts!

NEW LITE VERSION! NEW!
The new Power Tower Pro Lite is now available with a 5400rpm H.drive, 512K Cache & a 2Mb ATI video card.


Shown with optional 20" monitor, ZIP & Keyboard Casing may differ.

"POWER COMPUTING HAS THE CLEAR AND UNDISPUTED EDGE IN BOTH PRICE & PERFORMANCE. YOU WANT A POWERTOWER PRO"
- MacUser (US) Magazine SEPT '96

"IF YOU REQUIRE MAXIMUM PERFORMANCE, NO CURRENT APPLE SYSTEM CAN TOUCH THE POWERTOWERS"
- MacWEEK Magazine

"THE POWERTOWER PRO SERIES ARE, AS A GROUP, THE FASTEST (MAC) SYSTEMS YOU CAN BUY"
- MacWorld Magazine OCT '96

"THE POWERTOWER PRO SERIES SOARS ABOVE ALL MAC RIVALS....MAC POWERUSERS WILL SOON BECOME POWER COMPUTING USERS IN DROVES"
- MacWEEK Magazine 22.7.96

PowerComputing

IN STOCK!!! WHY WAIT FOR SYSTEMS THAT MAY NEVER ARRIVE? CW HAVE BEEN SHIPPING 225MHZ FOR THE PAST FIVE MONTHS! GET YOURS!!

THAT'S FAST!!

"T...THE REDDER THEY GET, THE FASTER THEY GET...THE REDDER THEY GET, THE

POWER CENTER	POWER BASE	POWER TOWER PRO
150MHz 604 RISC Integral FPU 32K on-chip cache	240MHz 603e RISC Integral FPU 32K on-chip cache	225MHz 604e RISC Integral FPU 64K on-chip cache
Via CPU daughter card	Via CPU daughter card	Via CPU daughter card. Dual support.
512K Level-2 Cache standard	256K Level-2 Cache standard	1Mb Level-2 Cache standard
3 PCI Slots	3 PCI Slots	6 PCI Slots
16Mb RAM DIMMS 512Mb max	16Mb RAM DIMMS 160Mb max	16Mb RAM DIMMS 1GB max
1MB VRAM 4Mb Max	2MB VRAM	8MB IMS Twin Turbo Graphics Card
x4 speed CD-ROM	x8 speed CD-ROM	x8 speed CD-ROM
Mini Tower	Low Profile Desktop or Mini Tower	Tower

225 Mhz 604e
£2395
EX VAT EX KEYBOARD £2814 INC VAT
P.TOWER PRO 16/2GB, CD, 8MB TWIN TURBO

POWER TOWER PRO LITE
225 Mhz 604e
16MB RAM, 2 GIG DRIVE
x8 CD, 512K CACHE
2MB ATI VIDEO CARD
£2195
£2579 INC VAT

NEW!

HOW POWER STACKS UP

P.Tower Pro 225	9.2
Umax Pulsar 200	8.3
Power Mac 9500/200	7.7
Power Mac 8500/180	6.7
PowerMac 9500/150	6.2

Longer bars are better. Results comparable to Centris 650 which scores 1
Chart copyright MacWorld October 1996.

*LONGER BARS ARE BETTER

604 POWER CENTER

"Performance and price combine to make the PowerCenter the most sensible choice for business and graphics." - MacWorld July 1976

BEST VALUE 604'S YOU CAN BUY!!

For many office users who dabble in DTP and desktop video, PowerCenters are the natural CW choice. These stunning mid-range machines blow much of the competition away with a combination of cracking speed, good expansion and high specification. PowerCenters ship with 132Mhz or 150Mhz upgradable 604 RISC cpus, PCI expansion slots, Ethernet, on-board VRAM and a great software bundle.
Don't delay - Go for Power Computing PowerCenter systems if you're looking for incredible CW value.

"PERFORMANCE AND PRICE COMBINE TO MAKE THE POWER COMPUTING POWERCENTER THE MOST SENSIBLE CHOICE FOR BUSINESS AND GRAPHICS".
- MacWorld

MW EDITORS' CHOICE

MW ★★★★/7.3

150 Mhz 604 P.CENTER MT 16/1G, X4 CD,
£1499
£1761 INC VAT

CW IS KNOCKED OUT WITH THE SPEC.

- Choose 132, 150MHz or 180 604 RISC machines in Low profile or Mini Tower
- 512Kb Level-2 cache
- x4 speed CD-ROM
- 3 PCI expansion Slots
- 1Mb VRAM
- 2 spare bays for Zip, Jaz CD Writer (on mini tower)
- 16Mb RAM, exp to 256Mb (4 DIMM slots)
- CPU upgradability via CPU daughter card
- 1 GIG hard drive
- In-built Ethernet

PLUS - Over £500 of FREE SOFTWARE
Free software includes * FWB Hard Disk Tool Kit PE * FWB CD-ROM Tool Kit * ClarisWorks * Grolier's Multimedia Encyclopedia * Now Contact * Now Up-to-Date * Nisus Writer [Trial] * Intuit's Quicken SE * America Online [Trial] * Compuserve [Trial] * 250 Bitstream Type 1 and Type 2 fonts **AND MORE!!**

Shown with optional 17" monitor. Casing may differ.

WOW!
132 Mhz 604
£1149
EX KEYBOARD EX VAT £1350 INC VAT
POWER CENTER LP 16/1GB X4 CD-ROM
LOW-COST MEGA SPEED

Shown with optional 17" monitor and Keyboard. LP = Low Profile MT = Mini Tower

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LASER PRINTERS | A4 - A3 PRINTING | SUPERB SCANNERS | INCREDIBLE VALUE | BEST UK DEALS!

LOWEST AGFA PRICES IN THE UK!

YOU CAN'T BUY BETTER!

AGFA DUOSCAN

£2789 £3277 INC VAT
AGFA DUOSCAN 2000DPI
SAVE £££'S @ CW!

AGFA STUDIOSTAR

£619 £727 INC VAT
AGFA STUDIOSTAR
SAVE £££'S @ CW!

STUDIOSCAN IISI

£449 £528 INC VAT
AGFA STUDIOSCAN IISI 30-BIT
SAVE £££'S @ CW!

AGFA ARCUS II

£1399 £1644 INC VAT
AGFA ARCUS II 36-BIT
SAVE £££'S @ CW!

AGFA SNAPSCAN

SINGLE-STEP AGFA SCANNING!

CW RECOMMENDED

SnapScan is Agfa's low-cost scanning solution for home or office. SnapScan automates the scanning process into one-button scanning. The result is a scanner that delivers the ultimate CW speed, quality, and true color in one low-cost, easy-to-use package. Capture impressively sharp images from photos, artwork, mags, books, and letters in any size up to 8.5" x 11.7". Just put the image on the scanner and let SnapScan do the rest.

- Optical resolution of 600 (v) x 300 (h) ppi, interpolated to 2400 ppi
- True one-pass scanning
- Superior sharpening
- Easy to use software for image editing, selective color correction, fax-copy-print, and text scanning
- FREE FotoLook, FotoSnap, FotoFlavor, Copy & Fax Utility, and ColorIt!, Caere's OmniPage Limited Edition

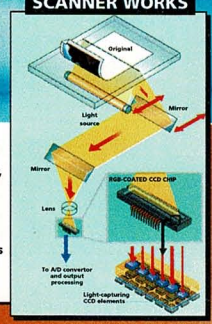
WOW!

LO COST SCANNING SOLUTION
TRUE ONE PASS SCANNING
EASY TO USE SOFTWARE
ULTIMATE SPEED AND QUALITY

£249 EX VAT £293 INC VAT
AGFA SNAPSCAN

Agfa flatbed scanners employ a linear, light sensitive CCD array, consisting of thousands of charge-coupled device elements arranged in a row or a single chip.

HOW AN AGFA SCANNER WORKS



EPSON 1440DPI PRINTERS

EPSON STYLUS COLOR 800

ULTRA FAST 7PPM COLOR

High speed color or mono printing producing stunning photo-real printing at 1440dpi! Laser sharp images everytime!

- Up to 8ppm mono, 7ppm color
- 1440 x 720 dpi resolution
- Windows and Mac compatible
- New quick drying inks
- Auto colour function - selects best settings for optimum performance
- Unbelievable quality!

NEW!

£329 EX VAT £387 INC VAT
EPSON STYLUS COLOR 800

EPSON COLOR 600

YOU CAN'T BUY BETTER!

1440 DPI QUALITY PRINTING

Outstanding value for the home or the office! 1440dpi photo-real color and laser sharp mono printing!

- Up to 6ppm mono, 4ppm color
- 1440 x 720 dpi resolution
- Windows and Mac compatible
- New quick dry inks
- Advanced dual ink cartridge system
- Unbelievable quality!

NEW!

£229 EX VAT £269 INC VAT
EPSON STYLUS COLOR 600

L.WRITER 16/600

16 PAGES PER MINUTE

Fancy a 600DPI, FAST, PostScript laser printer with Ethernet? Not only does it do all this but it has the option of full-function send/receive FAX capability! Use it just like a Network FAX!

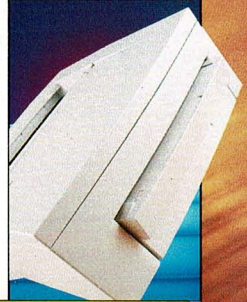
- 600dpi resolution with FinePrint & Photograde
- PostScript Level 2
- 16ppm operation
- Two trays on-line + option of a third!

SCOOP! SAVE £££'S @ CW!

£1399 EX VAT £1644 INC VAT
LASERWRITER 16/600PS

L.WRITER 4/600

600DPI POSTSCRIPT



Here's a 600dpi PostScript laser for the price of a personal printer. LaserBridge software allows integration into Ethernet networks. Ideal for home, education and small business users!

- 600dpi print engine
- 4 ppm operation
- LocalTalk network
- PostScript Level 2 - Ideal for low-end DTP!

SCOOP! SAVE £££'S @ CW!

£565 EX VAT £664 INC VAT
LASERWRITER 4/600PS

GCC ELITE 1212

1200 DPI A4 PRINTER

NEW!

Just check out this superb new printer from GCC. Typeset quality printing has never been so affordable.

- LocalTalk & 10Base-T Ethernet networking
- 1200 X 1200dpi laser
- PostScript Level 2
- 12ppm operation
- A4 - edge to edge printing
- 8MB RAM (upgradable to 64MB)
- 50MHz RISC processor

SAVE £££'S @ CW!

£1079 EX VAT £1268 INC VAT
GCC ELITE 1212 A4 1200DPI

HEWLETT PACKARD 6MP

POSTSCRIPT LASER - NEW!

The 8 page per minute engine and superb paper handling make this a CW recommendation for 1997. 3Mb of memory and LocalTalk plus PostScript level 2 compatibility.

- True 600 x 600dpi resolution
- Speedy 8ppm operation
- 3Mb RAM - expandable
- NEW from Hewlett Packard!

SAVE £££'S @ CW!

£699 EX VAT £821 INC VAT
HEWLETT PACKARD 6MP LASER

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TOP CW VALUE · NEW 200MHZ MODEL · GREAT BUNDLES · BEST UK PRICES!! · SEE THEM TODAY!!

WITH SELECTED PRINTERS

300DPI LASER!!

No longer you have to suffer paper jams when printing on various media size, weight or style. The HL-630/631 is CW's answer.

WOW!

EXCLUSIVE AVAILABLE ONLY FROM CW!

Only at CW will you find this incredible Brother HL-631 price. It's Exclusive!

FREE @ CW
MONOTYPE FUN FONTS 1 & 2 + A REAM OF WHITE PAPER
FREE WITH EVERY PRINTER SHOWN ON THESE PAGES

ALL THIS AND MORE!!

- 300DPI SUPER-FAST PRINTING
- GENUINE BROTHER LASER
- USE WITH BOTH MACs & PCs
- WHY BUY AN INKJET??

CW RECOMMENDED

300DPI, BROTHER LASER PRINTING FOR THE PRICE OF AN INK-JET!!

WOW!

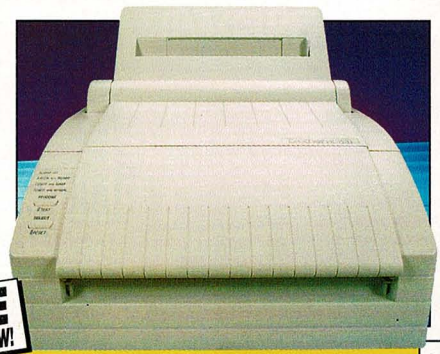
Lock up your daughters - he's done it again! CW just loves a deal and here is his latest. A superb brand name laser printer for less than £300!
And not just any old laser either. No, this quality unit is the award winning Brother HL-631 personal laser which has been designed to offer both the finest printing & the most affordable solution for your home & office. A firm favourite with our PC friends (it won the PC Magazines Technical Innovation of the Year), the Brother HL-631 stands out from the rest because of its speed, flexibility and print quality.
It's perfectly at home with a Mac or a PC - in fact it can be connected to both at the same time - and offers a straight paper path. No longer you have to suffer paper jams when printing on various media size, weight or style. A real boon to the office user.
Just check out these features:

SUPER-HIGH QUALITY PRINTING
- 300dpi printing with genuine Brother technology laser printing
- 6ppm ■ Clear crisp print quality utilizing microfine toner.

VERSATILE PAPER HANDLING
- Straight paper path with short travel distance allows a wide choice of media styles, sizes (8.5 x 14" to 2.75 x 5") & weight
- Flexible multi-purpose sheet-feeder which holds 200 A4/LTR sheets or 10 envelopes.
- Manual feed slot for labels, light card stock & OHP transparencies

COMPATIBILITY & CONNECTIVITY
- Macintosh QuickDraw via RS-232C serial interface
- Most PC printer emulations standard. (HP LaserJet IIP, 850 & IBM Proprinter XL) + auto emulation switching
- Auto interface switching between Mac and PC

ENVIRONMENTALLY FRIENDLY
- Auto Sleep mode for power saving.
- Economy printing mode for toner saving



SAVE ££'S @ CW!

£299

EX VAT £351 INC VAT

BROTHER HL-631 LASER

WHILE STOCKS LAST!! · ONE YEAR ON-SITE WARRANTY INCLUDED

STYLEWRITER 1500

BEST VALUE COLOR INK-JET

YOU CAN'T BUY BETTER!

The whizzy Apple Stylewriter 1500 is a low cost colour inkjet printer that offers near laser quality printing at 360 x 360 dpi! Change from Black cartridge to CMY cartridge for amazingly high quality color outputs! Its easy! Now less than £200!!
- 360 x 360 dpi colour/greyscale resolution
- Maximum 100 sheet paper tray
- 64 Truetype fonts included
- Compact/easy to store
- Ethernet & LocalTalk with ColorShare
- Easy to use and set-up
- Great quality & low price!

FREE @ CW MONOTYPE FUN FONTS 1 & 2 + A REAM OF WHITE PAPER

LIMITED STOCKS!

SAVE ££'S @ CW!

£149

EX VAT £175 INC VAT

COL STYLEWRITER 1500

STYLEWRITER 2500

SUPERB CMYK QUALITY

YOU CAN'T BUY BETTER!

This economical and compact colour printer from Apple delivers crisp laser quality text, vibrant color and fast drying action due to water and fade resistant inks. CMY and Black cartridges both inside - no need to change cartridges. - great for color AND black and white printing.
This printer gets a CW best buy!
- 720 x 360 dpi resolution and up to 5ppm
- Maximum 100 sheet paper tray
- 64 Truetype fonts incl.
- Ethernet and LocalTalk with ColorShare
- Desktop design - internal power supply

FREE @ CW MONOTYPE FUN FONTS 1 & 2 + A REAM OF WHITE PAPER

LIMITED STOCKS!

SAVE ££'S @ CW!

£229

EX VAT £269 INC VAT

COLOR STYLEWRITER 2500

APPLE 12/640PS

NEW!

12PPM APPLE LASER
High performance PostScript laser printer provides incredible results. Supports Adobe PostScript level 2.
- 600dpi (250 sheet feeder)
- 12 ppm
- Expandable RAM
- Expansion kit adds duplex capability

SAVE ££'S @ CW!

£1049 £1232 INC VAT

LASERWRITER 12/640PS

APPLE 12/660PS COLOR

NEW!

POSTSCRIPT COLOR LASER
30% faster than the 12/600 it replaces, this great cross-platform color laser offers superior quality color printing, Postscript level 2, 600dpi resolution and 12ppm!
- 600 x 600dpi with Photograde
- 16Mb RAM - exp to 40Mb
- Ethernet as standard

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APPLE COLOR LASERPRINTER

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DESKTOP SCANNER | FLATBED SCANNER | LOW-COST | HIGH END | 300DPI - 4800DPI

CONTEST 4800

4800DPI, 24-BIT SCANNER
LESS THAN £170!!

At long last there is a user-friendly scanner that produces true-to-life professional scans in a flash and at an ultra-low cost.
The CW exclusive Contest 4800!!
This single pass scanner gives you a razor-sharp scan in no time and with the bundled Color It and OmniPage OCR software (on CD-ROM only) it's ready to become your most productive desktop tool. Just check the spec:

- Genuine 24-bit color scanning
- 8-bit greyscale scanning for black & white photos
- 300 x 600 optical resolution
- Large 342mm x 216mm scanning area
- 4800dpi x 4800dpi interpolated resolution
- Single-pass and ultra-rapid scanning
- FREE Color It, ScanWizard & OmniPage LE software

Note software only available on CD-ROM.

SAVE ££££'S!

£169

CONTEST 4800 SCANNER

EX VAT £199 INC VAT

NIKON SCANTOUCH 110

WOW!
FREE..FREE..FREE..
✓ PHOTOSHOP PLUG-IN
✓ OMNIPAGE LE OCR SCANNING SOFTWARE

SCOOP PURCHASE EXCLUSIVE CW PRICE
LIMITED STOCKS!

THE BEST VALUE A4 COL. SCANNER

Compact, mega-fast and offering superb quality - the Nikon Scantouch is a firm favourite with CW.
And at this price it's an absolute steal! Use this great scanner for all your desktop publishing. Black and white photos, color photos and line art.
There's even an optional hood available for scanning negatives and transparencies.

- Genuine 24-bit color scanning (16.7million colors!) for color photos
- 8-bit greyscale scanning (256 greys) for black & white photos
- 300 x 600 optical resolution
- Large 216mm x 297mm scanning area
- 4800dpi x 4800dpi interpolated resolution
- Single-pass and ultra-rapid scanning
- FREE Nikon Scan plug-in software & OmniPage LE OCR software

FREE NIKON SCAN | FREE OMNIPAGE LE

SAVE ££'S @ CW!

£199

NIKON SCANTOUCH 110

EX VAT £234 INC VAT

VIDEO CAPTURE @ 'OL CW NOW!!

MIRO DC-20 BOARD

AFFORDABLE AND QUALITY
The Miro DC-20 PCI card offers superb QuickTime capture for a fraction of the cost of competing systems.
You simply must see this in action!
FREE Premier 4.2 included.
CW has the lowest UK price!!

BEST

SAVE ££££'S!

PRICE IN THE UK

MEDIA 100 QX

ASTOUNDING QUALITY
Full Broadcast-ready video editing using QuickTime.
Superb quality and PCI-bus based, this video capture system directly controls Adobe Premier so it's ultra-easy to use.
You just can't get better than this.

£4495

SAVE ££££'S!

£5282 INC VAT

SCANMAKER E3

£219 £257 INC VAT
OMNIPAGE LE + SCAN WIZ

EPSON GTX-5000

£249 £293 INC VAT
INC. P.SHOP LE & TEXTBRIDGE

EPSON GTX-8500

£399 £469 INC VAT
INC. P.SHOP LE & TEXTBRIDGE

SCANMAKER E6

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EPSON GTX-9500

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GREAT VALUE 600DPI SCANNER

AGFA SNAPSCAN

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AGFA SNAPSCAN SCANNER

STUDIOSTAR

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AGFA STUDIOSTAR SCANNER

AGFA DUOSCAN

£2789 £3277 INC VAT
DUOSCAN 36-BIT SCANNER

NEW!
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BUY PHOTOSHOP v4 AND GET A FREE A4 COLOR SCANNER!

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'I just can't believe these prices - a GENUINE Sony Trinitron tube monitor for less than £900 - Impossible - but eerily true!

GOSH!

CW GIVES YOU THE BEST FOR LESS!!

17" DIAMONDTRON

DYNAMITE!

- 17" Diamondtron™ display (16.2 inch viewable area)
- Maximum resolution of up to 1,600 x 1,200 non-interlaced
- Complete with cable and Mac adaptor
- Multi-scan technology
- Unlimited display colors
- 0.25mm Aperture grill pitch
- Vertical scan range 50-120Hz
  Horizontal scan range 24-82kHz
- On-screen management of display modes
- Weighs 22Kg

ONLY AT CW!!

£399
CW DIAMONDTRON 17" MONITOR
EX VAT £469 INC VAT

LIMITED STOCKS!

LIMITED STOCKS!

20" TRINITRON

DYNAMITE!

- Genuine Sony Trinitron tube
- 20" Trinitron™ display (18.5 inch viewable area)
- Maximum resolution of up to 1,280 x 1,024 @ 75Hz
- Complete with cable and Mac adaptor
- Multi-scan technology
- Unlimited display colors
- Mac adaptor included
- On-screen management of display modes

ONLY AT CW!!

£899
CW TRINITRON 20" MONITOR
EX VAT £1056 INC VAT

EVERYTHING YOU WANTED TO KNOW ABOUT MONITORS
BUT WHERE AFRAID TO ASK!

THE VIEWABLE AREA
When is a 15" screen not a 15" screen. When its viewable area could actually 13.3". For years screen manufactures have measured the size of the tube. However honest CW gives you the actual viewable area.

RESOLUTIONS & WYSIWYG
WYSIWYG - near 72dpi (What you see it what you get) means that what you see on screen matches the size of your actual document when it's printed: eg: select 100% view in Xpress and it will show a page at actual size. For WYSIWYG operation you need 832 x 624 pixels on a 17" monitor and 1024 x 768 pixels on a 20". However it's sometimes an advantage to forgo WYSIWYG in favour of the ability to view larger documents - in other words increase the resolution eg. 1024 x 768 pixels on a 17" monitor will display roughly an A3 spread.

MULTIPLE SCAN TECHNOLOGY
A monitor capable of multiple resolutions utilises multiple scan technology. The new Apple 17" and 20" monitors can switch resolutions on-the-fly.

DOT PITCH & SHARPNESS
Apart from the screen manufacture process the thing to look for is Dot Pitch (the distance between each group of red, blue and green phosphers that make up the smallest physical pixel possible. Generally the smaller the dot pitch the better the sharpness. A small dot pitch of 0.28mm provides a good clear image.

GLOSSARY OF TERMS
Convergence
How effectively the beams of red, green, blue hit their target.
Gray Linearity
Measurement of a monitors ability to show shades of grey. ie 0% white to 100% black

KODAK DC-20

DIGITAL SCIENCE CAMERA
Just point, shoot then plug into your Mac! Fun and ideal for Web images.
- 494 x 373 pixels
- 1MB memory
- 16 images
- Integral flash

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£199 KODAK DC-20
£234 INC VAT
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KODAK DC-25

DIGITAL SCIENCE CAMERA
Inexpensive and easy to use!
- Max 493 x 373 pixels
- 14 high res or 29 standard images
- Built-in flash
- Automatic time LCD panel

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£329 KODAK DC-25
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KODAK DC-40

DIGITAL SCIENCE CAMERA
Larger images produced make this camera ideal for in-house dtp.
- 756 x 504 pixels
- In-built flash
- Auto shutter speed & flash 4Mb memory

£399 KODAK DC-40
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KODAK DC-50

DIGITAL SCIENCE CAMERA
Superb images and variable shutter speed.
- 756 x 504 pixels
- 1MB exp to 16Mb
- Optional PCMCIA card. (4Mb card holds up to 88 images)

£415 KODAK DC-50
£487 INC VAT
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POLAROID PDC-2000

HOT PRODUCT!
HIGH QUALITY IMAGING
Great quality and quite superb value
- 1600 x 1200 pixels
- Up to 60 High-res images
- Auto-focus & in-built flash
- SCSI-2 interface
- CW recommended

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FROM ONLY £2349 POLAROID PDC-2000
£2760 INC VAT

FUJI DS-7

NEW!
WOW!
AWARD WINNING!
Great value and winner of the MacUser 'Best Buy'
- 640 x 480 pixels
- Up to 60 images
- Expandable via PC card
- Integral LCD viewing panel

£499 FUJI DS-7 DIGITAL
£586 INC VAT
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CASIO QV10A

NEAT AND SMALL
Handy and ultra-compact. The ideal space-saver!
- 320 x 240 pixels
- Up to 96 images
- Twisting LCD viewing panel - see yourself!
- In-built flash

£299 CASIO QV10a
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PCI GRAPHICS CARD

MAC PICASSO 520 4MB PCI GRAPHICS CARD

An accelerated PCI graphics card for your PCI bus equipped Mac OS system can be a real boon. Now there's no excuse. Here's a great super-speedy 64 bit PCI Graphics accelerator card offering 4MB of 50ns EDO VRAM and up to 1600 x 1200 resolution.

- 7" PCI card with 64-bit graphics accelerator chip from Cirrus Logic
- Mac DB15 and VGA monitor connectors
- 4Mb EDO VRAM. Up to 1600 x 1200 resolution
- Millions of colors at 1024 x 768

BEST UK VALUE!!

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4MB PCI GRAPHICS CARD
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"I CALL IT AS I SEE IT".

	CW 14 INCH	APPLE 14 MULT-SCAN	CW 15 INCH	APPLE 15 M.SCAN AV	SONY 100SF	CW 17 DIAMONDTRON	APPLE 1705	APPLE 1710	APPLE 1710AV	SONY 200SF	CW 20 TRINITRON	APPLE 20 MULT-SCAN	SONY 300SF
SIZE	14 inch diagonal	14 inch diagonal	15 inch diagonal	15 inch diagonal	15 inch diagonal	17 inch diagonal	17 inch diagonal	17 inch diagonal	17 inch diagonal	17 inch diagonal	20 inch diagonal	20 inch diagonal	20 inch diagonal
VIEWABLE AREA	13.2 inches	12.4 inches	13.78 inches	13.75 inches	13.9 inches	16.2 inches	15.8 inches	16.1 inches	16.1 inches	16.1 inches	18.5 inches	19.1 inches	19.1 inches
SPEAKERS	No	Yes - stereo	No	Yes - stereo	No	No	No	No	Yes	No	No	No	No
SPECIAL FEATURES	Complete with Mac adaptor On-site service	800 x 600 pixels @ 75Hz Energy Star	1024 x 768 pixels @ 75Hz Energy Star	In-built microphone 800 x 600 pixels	On-screen management controls	Up to 1600 x 1200 non-interlaced On-screen control	Up to 1024 X 768 pixels Energy Star	Up to 1280 X 1024pixels Energy Star	Up to 1280 X 1024 pixels In-built Mic	Up to 1024 x 768 On screen management	On-screen management Unlimited colors	Up to 1280 X 1024 pixels Energy Star	Up to 1280 X 1024 On-screen management
TUBE	14" CRT	Shadow Mask	FST	Shadow Mask	Sony Trinitron™	Diamondtron™	Shadow Mask	Trinitron™	Trinitron™	Sony Trinitron™	Sony Trinitron™	Trinitron™	Sony Trinitron™
PRICE	£149 (£175 inc)	£215 (£253 inc)	£219 (£257 inc)	£339 (£398 inc)	£309 (£363 inc)	£399 (£469 inc)	£419 (£492 inc)	£549 (£645 inc)	£599 (£704 inc)	£499 (£586 inc)	£899 (£1056 inc)	£1149 (£1350 inc)	£999 (£1174 inc)
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THE CW SPRING SELECTION OF THE HOTTEST SOFTWARE SELLING AROUND. THESE ARE CW'S FAVOURITES!

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CW MULTIMEDIA, GRAPHICS & DTP PICKS

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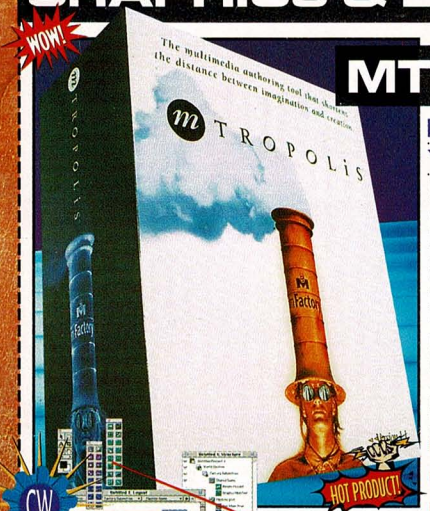
WOW!

MTROPOLIS



POWERFUL YET SO EASY

mTropolis is the revolutionary authoring tool which CW reckons will define a new standard for easy multimedia development. Through its object-oriented approach, this powerful application provides CW with amazing flexibility in the creation of his multimedia applications.
The intuitive, graphic authoring process allows even non-programmers to create remarkably compelling interactive experiences. And once a title is authored it can be played back on Mac, Windows and Internet platforms - without further purchase!

- Fully object orientated architecture for unequaled flexibility and reusability.
- Simple drag-and-drop world-building without volumes of complex coding
- High-performance multi-threaded engine for more responsive playback
- Open and extensible APIs eliminate boundaries to creative development
- Author once, then playback on Mac, Windows - even the Internet.

One to watch - it's gonna be HUGE!

CW RECOMMENDED

Complex behaviours can be assembled without coding, by simply dropping combinations of pre-built modifiers onto media objects.

A highly-visual WYSIWYG environment provides complete control over graphical layout, letting CW view elements as he constructs them.

GOSH!

IMAGINE THAT - NO SCRIPTING REQUIRED!

To help bring your title to life, message passing between any component is accomplished through simple and clear pop-up menus.

IT'S ME - I LOVE IT!

CROSS PLATFORM

MacOS

Building a title for a specific platform is as simple as selecting "Build Title for..." from a mTropolis menu. mTropolis determines which objects are used in your title, binds together a platform-optimized set, performs media conversions, and produces a standalone application. Media placement is optimized for fast data streaming or for title size. Standalone, high-performance titles can currently be built for Macintosh, Power Macintosh, and Windows (including Windows 95) systems.

ONE PLAYER DOES IT ALL

£495 EX VAT £581 INC VAT

mTROPOLIS CROSSGRADE

Offer Open to all Director users

DIRECTOR CROSSGRADE

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PHOTOSHOP 4 PLUS FREE A4 FLATBED COL. SCANNER!

V4 PHOTOSHOP

FREE SCANNER

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- **You buy the NEW Adobe PhotoShop version 4**
- **You get a FREE 24-bit 300dpi A4 color flatbed scanner.**

Whether you're re-touching high-res scans, designing textures and buttons for multimedia or creating artwork from scratch, Photoshop is the best there is. Easy to use and immensely powerful. You just can't do without it.

Here's what's new in version 4...

- Actions - a macro creator within Photoshop for repetitive tasks
- Adjustment layers - make modifications to your image without changing pixel information
- Free Transform - multiple transformation without loss of quality
- Guides and Grids - at last!!

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PHOTOSHOP + FREE A4 SCANNER!

Minimum packaging and electronic documentation supplied.

CW INTERNET & WEB AUTHORING PICKS

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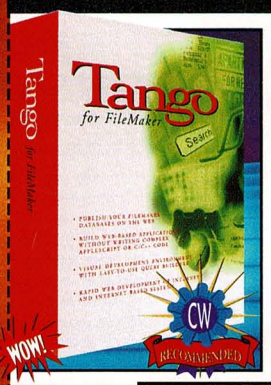

CW - WEB SPECIALISTS

CW has all the tools you need for successful site management and Internet publishing. Take for example Tango for Claris FileMaker Pro.
If you use Claris FileMaker Pro, Tango for Filemaker is your ticket to a more productive Web Server.
With Tango for FileMaker you can publish databases directly on the Web. Price-lists, catalogues - you name it. In addition, you can build web-based applications without writing SQL, PERL or C++ with automatic formatting of fields as plain text, lists etc..

FOR FILEMAKER

Publish your FileMaker databases on the web!

- Build web-based applications without writing SQL, PERL or C++
- Ease to use query builders
- Automatic formatting of fields as plain text, lists, etc.

SAVE £££'S @ CW!

TANGO FOR FILEMAKER **£249** £293 inc

TANGO

Rapid web application development software

- Connect your website to any ODBC-compliant database
- Build web-based applications without writing SQL, PERL or C++
- Ease query builders

NEW AT CW!!

TANGO APPLICATION BUILDER **£249** £293 inc

PHANTOM

Lets you scan any website on any platform and perform a complete searchable index of its HTML pages.

- Web site mirroring/archiving
- Independent server or CGI
- Reports
- Activity logging

NEW AT CW!!

PHANTOM ADMINISTRATION TOOLS **£249** £293 inc

MAXUM PACK

A suite of 5 powerful applications which make your web server dynamic, interactive, reliable, secure and fast!

- NetCloak
- NetForms
- Page Sentry
- Web Lock
- Rush Hour.

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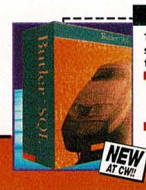
MAXUM PACK 5 GREAT UTILITIES **£449** £528 inc

BUTLER SQL



The complete database Web solution. Use the right front end for the job in hand. Supports:

- WebStar, Brio DataEdit, First Class, Microsoft Excel, AppleScript, CQL, Omnis 7, HyperCard, Novell App-Ware
- Ultra flexible

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BUTLER SQL WEB SOLUTION **£479** £563 inc

CW BUSINESS SOFTWARE PICK

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Not only do you get six, powerful applications in one, compact program but two other great software titles as well. For a limited time only CW can offer ClarisWorks v4 with FREE Claris HomePage v2 (Web page layout package) and Netscape Navigator 3 (industry standard Web browser) for the incredible package price of £99.

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- Superb drawing with unique art libraries packed with useful clip art
- Layout full Internet Web pages with **FREE Claris HomePage**
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6 PROGRAMS IN 1
INSTANT AND INTEGRATED ACCESS TO ALL 6 PROGRAMS FROM WITHIN THE 1 APPLICATION AT THE SAME TIME!!

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WEB PAGE AUTHORING
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DATABASE MANAGER
PRESENTATION
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NETSCAPE NAVIGATOR

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- **Adobe Acrobat Pro Catalogue** — Electronic document creator £189
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- **Retrospect Remote** — Network back-up utility £249
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- **Warlords II** £29
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- **MYST** £31
- **Descent II** £29
- **Ultimate Doom** £25
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AND LOTS, LOTS MORE
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This is just a small selection of the masses of titles CW has available for Mac OS systems. Call CW today for many more - or visit one of our two handy stores!!

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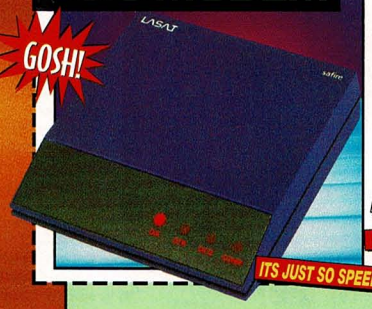
MODEMS

36.6 MODEM

GOSH!



HOT PRODUCT!

LASAT SAFIRE 33.6 MODEM

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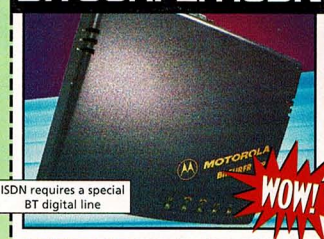

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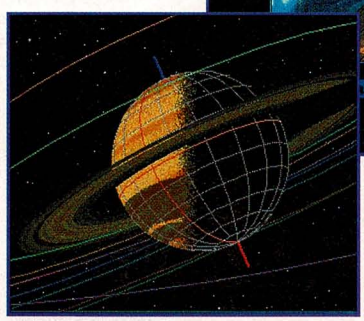
MAC **Processor:** 68040 • **RAM:** 8Mb	**POWERMAC** **Processor:** any • **RAM:** 8Mb	**REQUIRES** **System:** 7.1.2 • **HD space:** 8Mb • **Screen:** 640x480 • **Colours:** 256 • **Extras:** 2x speed CD-ROM drive	

Solar System Explorer

Dateline: 2019. Mission: To go where no-one has gone before. And to do it boldly, probably. Once you've hopped on board this latest offering from Maris, package holidays will never seem the same again.

The Apollo command module certainly didn't have a library quite like this.



Okay, so you've skimmed past the Earth's moon and now you're whizzing over the rings of Saturn, heading towards Pluto. Just one question: how do you get back?

Like the house-trained robot and the car that runs on reconstituted cheese, mass space travel is something that might never happen. If this quirky astronomy disc from Maris Multimedia is to be believed, though, by the year 2019 it will have become a reality. In the meantime you have this, inter-planetary tourism of the future – all viewed, of course, from the safety of your reclining seat.

Appearing at first to be a gimmicky offshoot of the mightily impressive *Redshift* series, *Solar System Explorer* gives you the opportunity to become chief pilot, scientist and researcher of your very own spaceship. Sounds silly, right? A space sim crossed with a game from the arcade? But fear not. Maris has brought every ounce of its heavyweight expertise along for the ride – and what a ride it is.

Based on real-time orbital theory from the Russian Space Program, this mission simulator enables you to travel to any point in the universe, orbit the rings of Saturn or fly over the surface of Venus.

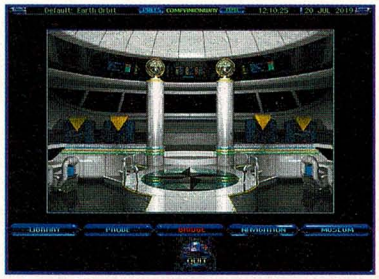
Your exit from planet Earth begins in the navigation room of a cold and empty spaceship. Using the on-board computer, you must plan and direct each stage of your incredible journey, right down to the last detail. First, after choosing your destination, you set dates and times, plot your navigation and flight paths and balance the amount of fuel you use against the warp factor you'll need. When you're orbiting the planet or moon of your choice, you can send down a probe to perform scientific tests.

In the same way we have rain, other planets have things like unimaginably hot volcano eruptions. You can learn all about these extreme phenomena by dipping into the on-board museum.

It's an exhaustive procedure, and one that is as complex as it sounds. Setting inclination angles, elliptical orbits and mission profiles is not something you do every day – but finding yourself at the helm of this imposing machine, you learn quickly. With every voyage you make, you develop more confidence. By the time you have the nerve to, say, orbit Jupiter via a fly-by of the surface of Mars, you're blasting around the solar system with one arm out of the window and one hand on the steering wheel. Well, virtually.

Typically, Maris doesn't stop there. Take a look around your ship and you'll discover that it houses the entire history of space travel. There's a museum displaying movie footage, photos and step-by-step breakdowns of pioneering missions. You'll find the flight data of every significant space voyage and can use it to recreate historical missions in your own space hopper.

You can dismantle the body parts of *Apollo*, *Viking* and *Galileo*, or rotate space probes and view them from any angle. There's even a video clip of a "next-frontier" speech by JFK. But, as any astronaut will tell you, going into space isn't just a matter of sitting back and watching the starry sky zoom by your windows.



Welcome to the bridge. You are captain, operational director and have sole use of the facilities. Yes, loneliness is a very real possibility on the good ship Explorer.

You need to have more than a passing scientific knowledge of the planets and their mysterious moons. This is no problem, though, because the on-board library provides detailed information about each planet. Click on "planetology" and you can view animated movies of mountains and seas, perform experiments in the fields of crater formation, seismology, magnetospherics, atmospherics and volcanic eruptions. And, if that isn't enough in-flight entertainment, there's always the direct connection to the latest developments in space exploration at Maris's Internet site. Just make sure you've packed your magnetic boots...

Despite looking rather like an avant-garde kitchen, the museum houses a wealth of information.

It may lack the stand-back authority of *RedShift*, and it certainly isn't for the casual observer, but *Solar System Explorer* enables you to take the already-impressive astronomy program somewhere it has never been before. **GIL GILLESPIE**

Solar System Explorer

Daunting at first, but it soon becomes a thrilling journey into the unknown, with you cast as the captain.

MF rating 83%

RedShift 2

We reviewed the updated version of Maris's ground-breaking astronomy program back in MACFORMAT 32, where it scored an impressive 92%, making it a MACFORMAT Classic. If you missed that issue, see page 144.

PRICE	£17.99	**ON SALE**	Now	**CONTACT**	Maris Multimedia on 0171 488 1566	**WEB SITE**	http://www.maris.com/
MAC	**Processor:** 68030 • **RAM:** 8Mb	**POWERMAC**	**Processor:** any • **RAM:** 8Mb	**REQUIRES**	**System:** 7 (Mac) or 7.1.2 (PowerMac) • **Screen:** 640 x 480 • **Colours:** 256		
• **Extras:** 2x speed CD-ROM drive							

Discover Astronomy

Multimedia astronomy discs aren't all intergalactic graph-plotting you know. This fresh offering is happy to be your introductory guide, donning armbands in the shallow end of the astronomy pool...

Stephen Hawking is one in several hundred million. Not many folk can gaze into the night sky with so much certainty, so much digested knowledge about Saturn's relationship with Mercury. For the average person on their way back from the pub at night, the stars still hold as much mystery as they do for children. Few of us have answers to the "what, where and how-did-this-excellent-canopy-unveil-itself-before-us" questions.

Discover Astronomy is thus intended not just for children, but also for all beginners who would rather not be blinded by science. Starting with the Big Bang and ending in difficult theories about the expansion of the universe, its alternative title could be *RedShift Made Easy*. Instead of plotting constellations with exact mathematical precision, this "ease-into-astronomy" disc holds your hand, uses cute animation, avoids words with more than three syllables and never asks you to work out the precise distance between Pluto and Uranus. If, however, you're thinking that this is merely a low-cost, low-calorie astronomy package, you would be sorely mistaken – the binge-potential is there.

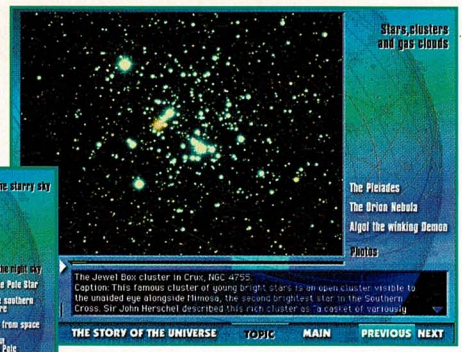
The photographs, although impressive, are limited in number. There are several shots of the moon, including this one showing its full vampire-beckoning splendour.

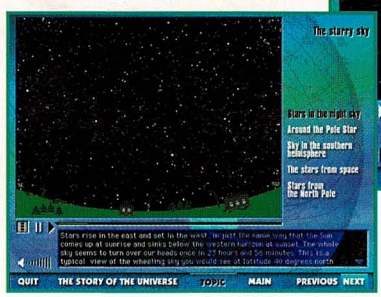
Dividing the distant beyond into ten main sections and a separate tour of the evolution of the universe, the program looks at the Earth, its moon and sun, adjacent and far-off planets, comets, asteroids and all that deep-space malarkey. Its character is perhaps best summed up by the fact that one of the subject areas is called "The Starry Sky". There is no room for scientific snobbery here, and yet all of the tours are surprisingly informative and inventive.

Enter the section on "The Outer Solar System", for example, and you'll find a wealth of information on each of the planets, and subsections on Jupiter's moons and Saturn's rings, as well as quality 3D virtual reality fly-by animations, text about the *Voyager 1* and *2* space probes and a library of photographs taken by satellite expeditions into this most inhospitable of no-go zones. Everything is fluid, highly visual and enriched with the same sense of wonder that children feel when they first hear these incredible truths.

As the price, and the intention, of *Discover Astronomy* suggest, this is not the most sprawling of space explorations. Indeed, compared to other Maris outings, it is barely a blip in the space-time continuum. Despite the 50 sit-and-watch space simulations, the bulk of the disc tends to rely on short blasts of text to fill in the information gaps. Only the subsection on the beginnings of the universe contains narration – most of the aural accompaniment consists of symphonic new-age bleepings pinched from *RedShift's* soundtrack. Even the animations, though undeniably photo-realistic, are not the real thing, and the gallery of photographs only extends to 60 images.

But *Discover Astronomy* isn't meant to be the ultimate in space probing. It is, as its title suggests, about discovery – and as a first stop in the great foyer of space, it is perhaps the most appropriate introduction we've had the pleasure to meet. Accurate, ingenious, wide-eyed with wonder and certain to add rocket fuel to all that curiosity. **GIL GILLESPIE**

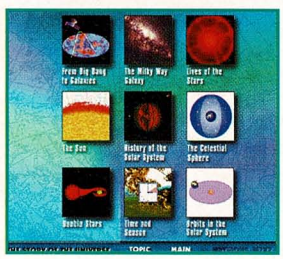

Stars, clusters and gas clouds
The Pleiades
The Orion Nebula
Algol the winking Demon
Photos
The Jewel Box cluster in Crux, NGC 4755
Caption: This famous cluster of young bright stars is an open cluster visible to the unaided eye alongside Mimosa, the second brightest star in the Southern Cross. Sir John Herschel described this rich cluster as "a casket of sparkling
THE STORY OF THE UNIVERSE
TOPIC
MAIN
PREVIOUS
NEXT


The starry sky
Stars in the night sky
Around the Pole Star
Sky in the southern hemisphere
The stars from space
Stars from the North Pole
Stars rise in the east and set in the west. In just the same way that the Sun comes up at sunrise and sinks below the western horizon at sunset. The whole sky seems to turn over our heads once in 23 hours and 56 minutes. This is a typical view of the wheeling sky you would see at latitude 40 degrees north
QUIT
THE STORY OF THE UNIVERSE
TOPIC
MAIN
PREVIOUS
NEXT

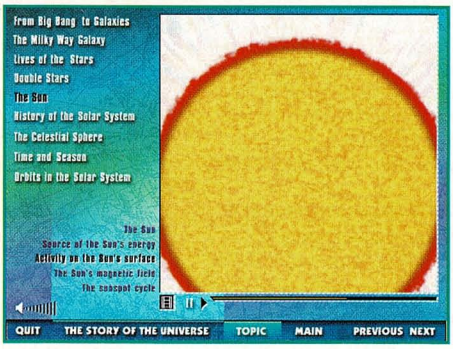
***Discover Astronomy* uses neat little animations to tell the greatest of stories. Celestial magnificence is often explained in a cartoon landscape – and this is no bad thing.**

Who's talking?

The narration in *Discover Astronomy* is provided by television personality Hannah Gordon. Her scripts, though, were penned by Jacqueline Mitton, the author of *The Penguin Dictionary of Astronomy*.



The nine narrated, animated 2D and 3D tours of the evolution of the universe are the deepest aspect of the program. It's a simple yet highly effective way to unravel the complexities of the universe.



Most sections use simple animation to explain astronomy. This "spots-on-eggyolk" diagram is illustrating activity on the surface of the sun.

Discover Astronomy

Neatly balanced in favour of the novice, yet scientific enough to have educational longevity. Excellent value for money.

MF rating 77%

Stars, clusters and gas clouds
The Pleiades
The Orion Nebula
Algol the winking Demon
Photos
The Horsehead Nebula and NGC 2024
Caption: This well-known dark nebula is one of the best-known images in astronomy, probably because of its obvious likeness to the head of a horse. The distinctive outline is an extension of a substantial cloud of dark obscuring
QUIT
THE STORY OF THE UNIVERSE
TOPIC
MAIN
PREVIOUS
NEXT

If it's chocolate-box colour explosions you're after, the Horsehead Nebula is just the ticket. It's just one of a selection of shots from the edge of the galaxy.

HIND

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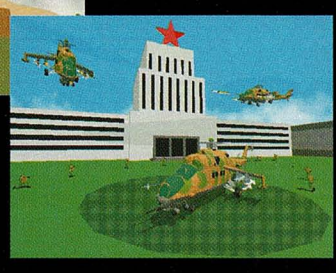

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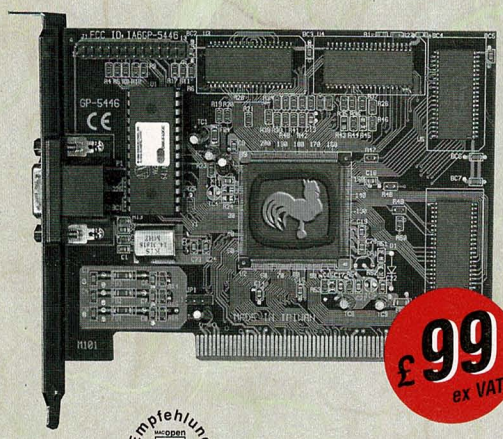

MacPicasso 516

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MacUser
7 February 97

see page 29

Empfehlung des Monats 11/96

MacPicasso 520

the classic one

Maxwell TEST WINNER 9/96

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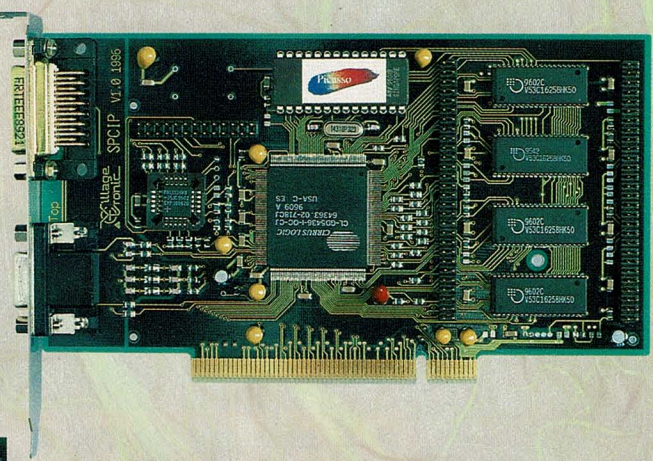

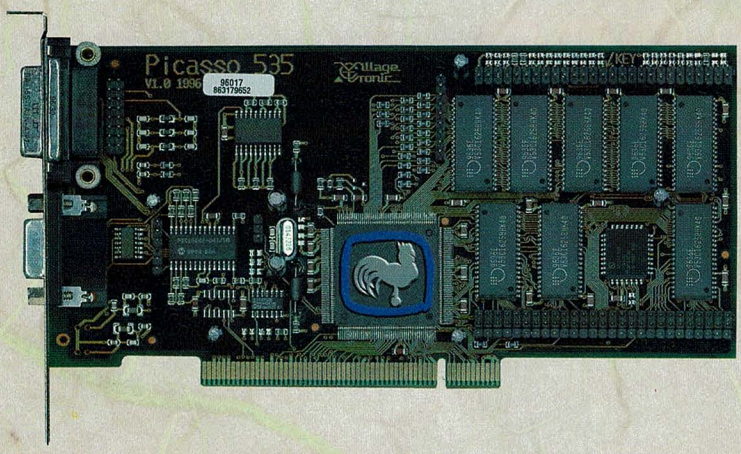

MacPicasso 535

the professional

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VGA & Mac monitor support, flash ROM
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plug & view, TV-out module (CVBS/Y-C)
*) april '97

Best Buy Award 09/96 Mac MAGAZIN

MacPicasso 320

the rejuvenator (no picture)

NuBus, 64 bit display controller, 2 MB
VGA & Mac monitor support, separate sync
256 colors: 1280 x 1024, thousands: 1152 x 1024,
millions: 832 x 624, Quickdraw 2D, plug & view

coming soon:

MacPicasso 335

NuBus version of MacPicasso 535
(no picture)

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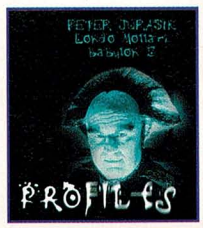
MAC	**Processor:** 68040 • **RAM:** 8Mb	**POWERMAC**	**Processor:** any • **RAM:** 8Mb	**REQUIRES**	**System:** 7.1 • **Screen:** 640 x 480 • **Colours:** 256 •		
Extras: 2x speed CD-ROM drive • QuickTime 2.5 (included)							

SFX•CD

This disc purports to be an entire magazine on CD-ROM. Where, then, are the creased pages and annoying inserts that fall on the floor on the way to the till?

Fans of science fiction are known to be collectors by nature. That's probably a good thing for the makers of *SFX•CD*, because if this product is to be judged on quality alone, we fear for its life.

It's ultimately a multimedia magazine that bears little relation to its cousin, *SFX* magazine, other than in name. There's the usual mix of news, reviews and features, plus what is proudly referred to as an "interactive" comic strip. Read "interactive" as clicking on-screen to reveal speech bubbles and advance the action along to the next frame. Also note how the animated frames are completely different in style from the stills. And forget about the story – there isn't much of one.



Peter Jurasik of the popular series *Babylon Five* is just one of five actors profiled on the *SFX•CD*.

The main feature covers a series of interviews with special-effects guys from various genres (including computer games). What's annoying, though, apart from the lack of detailed content, is the way the featured photographs don't always tie in with the text. What's the point of going into detail about Eddie Murphy's white make-up from the film *The Nutty Professor* if you don't show a related photograph?

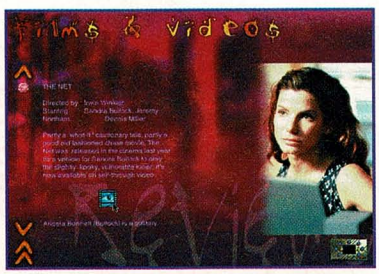
The *X-Files* is the featured science fiction series, with a lead video review and an episode guide among other more generic features. Assuming you can locate them – it's not explained how to use the menu system, and there's no index or search facility available – you'll find that these are largely uninteresting snippets that have been jazzed up with a fancy interface.

The reviews section, easily the best section of the CD, includes *The Nutty Professor* and *Multiplicity* – both more comedy than science fiction – plus various book, computer and video reviews. However, despite an excellent round-up of all the recent *Star Trek* CD-ROM games, this section also suffers from being too short.

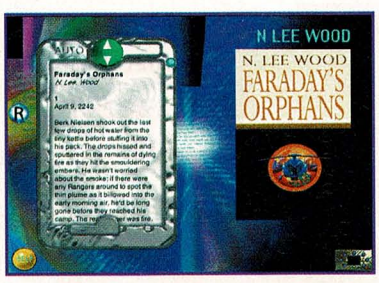
The user interface and overall presentation, like much in this CD, are superficially attractive but ultimately annoying and confusing to navigate through. The multimedia angle is pretty minimal too – just some soundbites from interviews with various actors, plus the occasional QuickTime movie. And although there are some genuine clips from the likes of *The Net* and *Deep Space Nine*, there are also many trailers too.

It's a cruel irony that while the *SFX•CD* might look excellent value at £6.99, it's not worth half of that – it's devoid of both of interest and information. Strip away the multimedia trimmings and you're left with a magazine that's twice the price of *SFX*, with half the content.

NICK PEERS



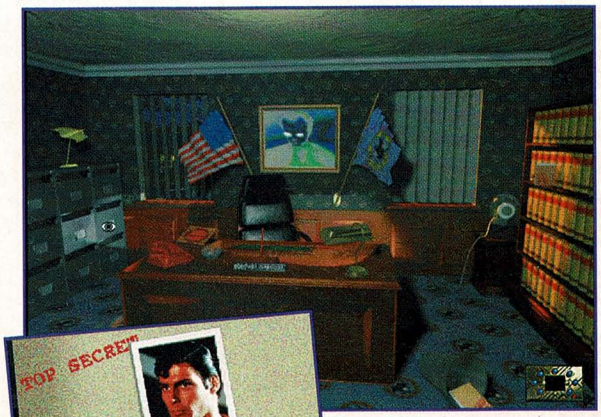
***The Net* is one of only seven film and video reviews included. Once again, *SFX•CD* fails to cover enough ground.**

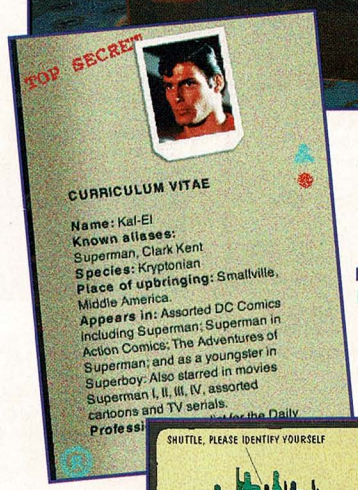


Several book extracts from up-and-coming books are featured.

Web links

One genuinely useful aspect of *SFX•CD* is the Web links it incorporates. So long as you've got your Web browser running, you can easily check out loads of extra information courtesy of the Internet. Don't, however, be surprised if you spend more time on the Internet than with the CD-ROM.




TOP SECRET
CURRICULUM VITAE
Name: Kal-El
Known aliases:
Superman, Clark Kent
Species: Kryptonian
Place of upbringing: Smallville, Middle America.
Appears in: Assorted DC Comics including Superman; Superman in Action Comics; The Adventures of Superman; and as a youngster in Superboy. Also starred in movies Superman I, II, III, IV, assorted cartoons and TV serials.

Above: The novel way of discovering hidden files on the likes of Spider-Man and Fox Mulder fails to conceal a basic lack of content.

Left: There is some genuinely useful information to be found in the Hidden Files section, but it is still woefully under-developed.

Right: Well, apart from the lack of action, excitement and storylines, *Zarnak* is a typical comic strip.

SFX•CD

Some interesting features here, but there needs to be much more content and a more user-friendly interface if future issues are to be worth buying. For completists only.

MF rating 48%

Unfortunately, because *SFX CD* is a quarterly publication, all of the featured news very quickly becomes old hat.

Question 2
Five sets of Babylon 5 Videos Volumes 14, 15 and 16. Videos are courtesy of Warner Home Video's Beyond Vision Serial Sci-Fi collection. Retail price £12.99 each.
THE NEWS

No less than ten competitions are in the second issue of *SFX•CD*.

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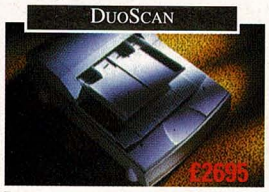

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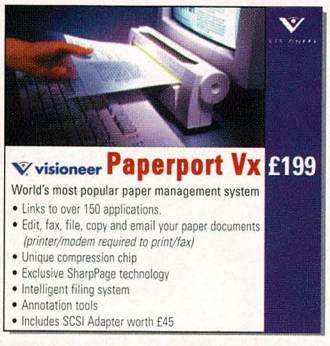

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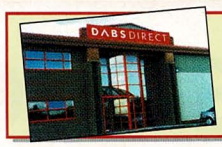

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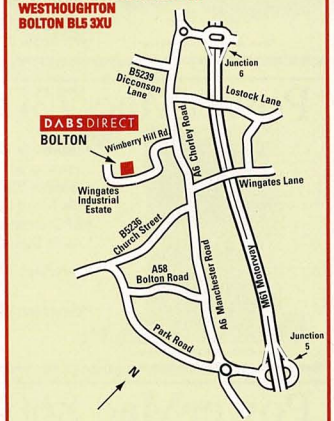

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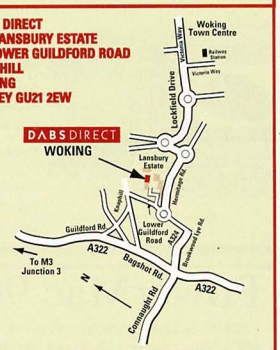

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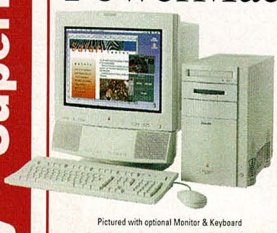

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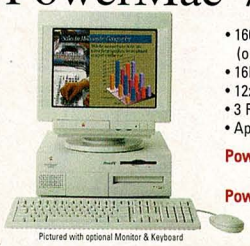

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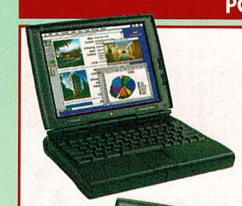

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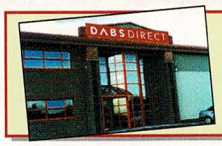

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Hard Disk	1.2Gb	2.5Gb	1.2Gb	2.5Gb	2.5Gb
PCI Slots	3	5	3	5	5
Drive Bays	2 External, 1 Internal	3 External, 2 Internal	2 External, 1 Internal	3 External, 2 Internal	3 External, 2 Internal
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StarMax 4000 Systems

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Memory	16Mb upgradeable to 160MB	32Mb upgradeable to 160MB	16Mb upgradeable to 160MB	32Mb upgradeable to 160MB
VRAM	2Mb upgradeable to 4Mb	2Mb upgradeable to 4Mb	2Mb upgradeable to 4Mb	2Mb upgradeable to 4Mb
Hard Disk	1.2Gb	2.5Gb	1.2Gb	2.5Gb
PCI Slots	3	5	3	5
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All models include: 256k Level 2 Cache, Internal 1.44Mb SuperDrive, Internal 8x CD-ROM Drive, Stereo 16-Bit Sound I/O, Keyboard & Mouse, Five-Year (1st year on-site) Manufacturer's Warranty.

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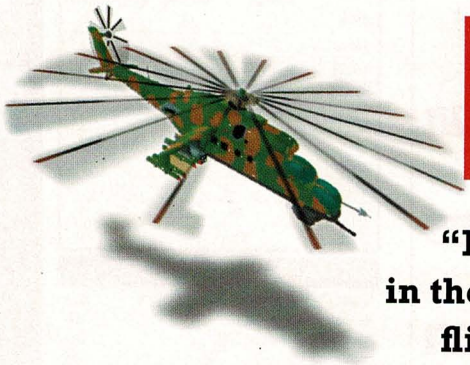
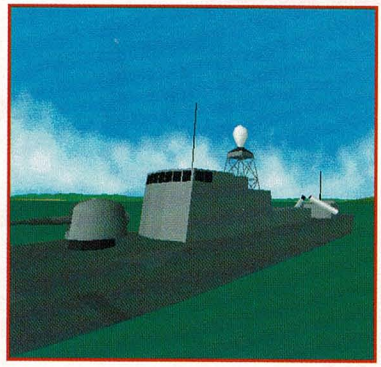


Hind

"Flying high, high, I'm a bird in the sky..." This new helicopter flight sim promises to take off in a big way. Jim Chandler gets airborne and finds out whether it flies or dies...

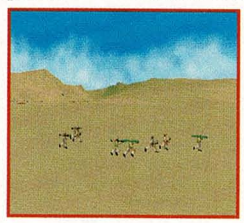


While you patrol the skies, these missile boats will defend the coastal waters and protect you from the enemy.

Helicopter simulators are almost completely unlike buses in all important respects apart from one: you wait ages for one, and two come along at once. Well, nearly. Hot on the tail rotors of *Apache Longbow* (reviewed in MACFORMAT 41), comes *Hind*, a new flight sim that gives you the chance to fly "the other side's" attack helicopter, the Mil Mi-24D Hind.

Hind comes from Digital Integration, a company best known for its PC flight simulators, and, like *Apache Longbow*, it appeared on the PC first. Its PC heritage is pretty obvious from the setup and options screens, which, while they're fairly clear, aren't at all Mac-like.

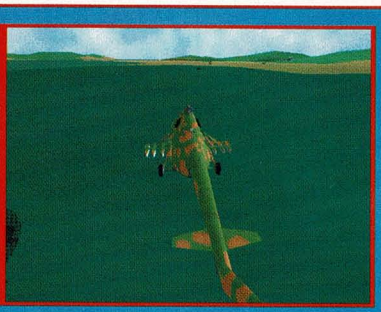
Unlike the sleek and lithe Apache, which was designed as a helicopter gunship, the Hind started its days as a transport-copter, and it shows. It looks like a pregnant cow, and handles like a hippo on roller skates – but on the plus side it's armed to the teeth, and can take a lot of punishment. Armament includes the now familiar turret-mounted automatic cannon, guided and unguided missiles, bombs, and air-to-air missiles. There's even a laser designator, so you can "paint" a target with a point of laser light that can be used as an aiming point for laser-guided bombs dropped from an attack aircraft.



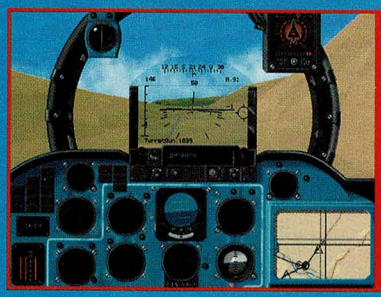
Enemy soldiers may seem to make easy targets, but they often carry deadly anti-aircraft missiles.

The Hind is rather basic by modern standards. The high-techery of *F/A-18 Hornet*, *Apache Longbow*, and even *A-10 Attack!* isn't apparent here. *Apache Longbow* has a digital map, with waypoints and targets displayed on a computer screen. *Hind's* moving map is obviously mechanical, with a little cross hanging from bits of wire to indicate your position. It has a head-up display (so you can see your height and speed, for example, without having to look down at your instrument panel), but its cockpit is resolutely mechanical rather than digital. This, along with the rather sickly shade of blue common in Soviet cockpits, gives *Hind* an interesting "stick and rudder" feel. Or rather, this being a helicopter, two sticks and a rudder. Luckily, recognizing that most people have neither two joysticks nor the necessary co-ordination to use them properly, Digital Integration has included a simplified control system that basically does away with one of the helicopter's control sticks and its throttle. Once you get used to this, you can switch to a more realistic mode – and then crash repeatedly until you eventually get the hang of it.

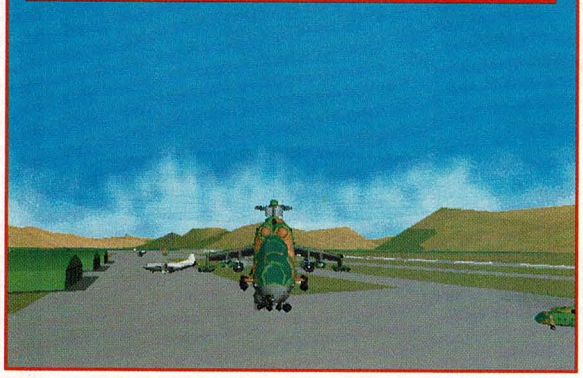
The big problem, of course, is who to point all this flying weaponry at. Fortunately, as a Soviet aviator, you've got plenty of enemies. First of all, some training in good old Mother Russia enables you to get the measure of all those guns and missiles, not to mention the basics of navigation, low-level flying, and (always useful) landing. After that, you can



The Hind's powerful engines enable it to carry quite a load of bombs and missiles.



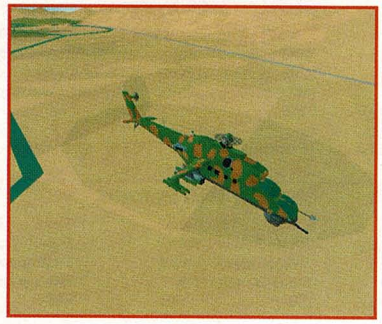
The pilot's cockpit has a distinctly low-tech feel. Note the mechanical moving map to the bottom right.



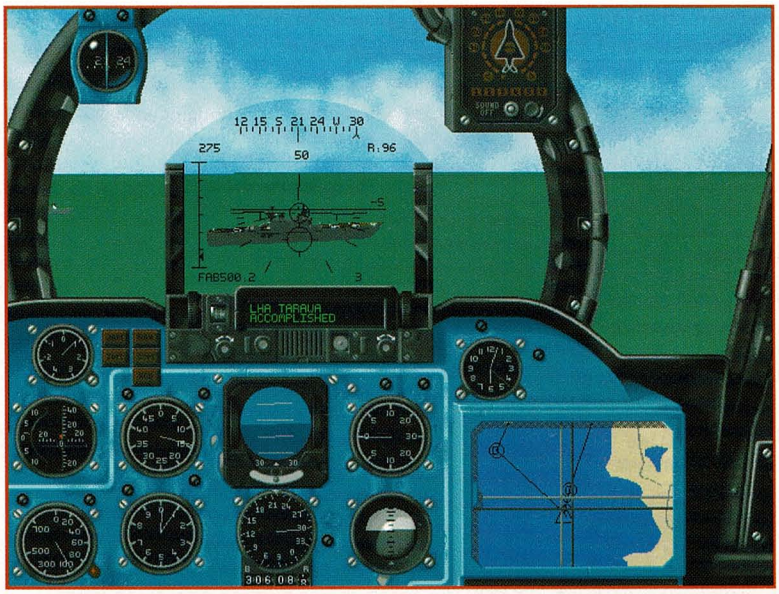
Your missions (and there are a variety) start at airbases like this, or at temporary camps near the front line.

Networked

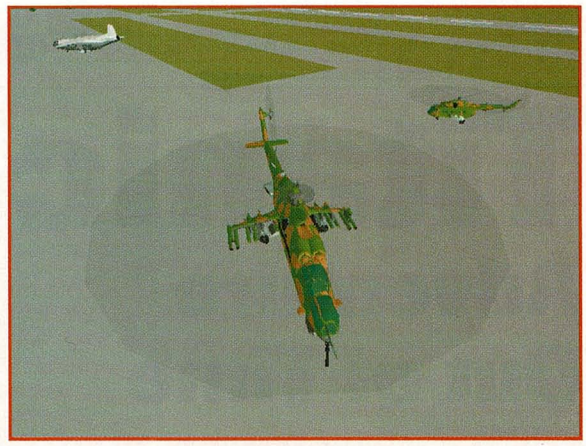
If you connect two Macs using a network or serial link, you can choose from several network game options. You can fly with a friend as his or her wingman or wing leader, or you can be the pilot or WSO (Weapons System Operator) while your friend plays as the other crewmember. Alternatively, if you're more competively minded, you can go in for the kill and try to shoot them down instead!



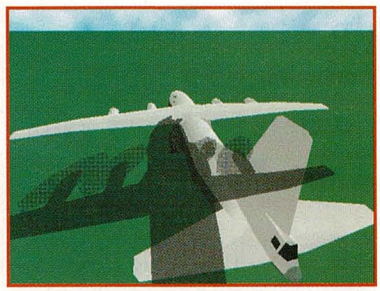
The Hind is a dangerous weapon, armed to the teeth. But it's not an attractive looking craft, whichever way you look at it.



Take aim – fire! This American assault carrier makes a nice big target, but beware – it's extremely well defended.



Take off to lead your wingmen in glorious defence of the *Rodina*. Now you too can experience that *Top Gun* feeling...



There are other aircraft around apart from you and your wingmen. They're not all friendly, though...

choose one of three theatres of war to fight in. If you fancy pacifying unruly rebels, you can elect to fly in Khazakstan, a former Soviet republic. If bloodying the nose of capitalist Yankees is more your bag, then you can aid the heroic North Koreans in ridding their southern territory of imperialist aggressors. Probably the most interesting theatre requires you to go back in time a decade or so, to combat the insurgency of counter-revolutionary Mujaheddin guerrillas in the treacherous mountains of Afghanistan.

Firing Line

Each of the three theatres has its own particular problems, like the advanced weapons of the Americans in Korea, or the deadly Afghan terrain. You can visit these war zones to fly single missions, or choose to fight a campaign in each one. In a campaign mission your performance is very important: future missions, not to say the outcome of the war, may depend on your prowess at blasting your foe.

The missions themselves are nicely varied. True, there are bombing and strafing outings galore, but there are also reconnaissance missions, and even sorties to drop or pick up troops (the Hind is a modified cargo chopper, remember). As a helicopter pilot, you'll be flying low, and looking out of the windows a lot too – so it's just as well that there's plenty of nice stuff to see. The terrain is impressive, particularly in Afghanistan, with its steep mountains and cramped passes, and it's also shaded to give it more shape.

There are roads, rivers and bridges, and towns really look like towns, instead of a couple of oversized shoe boxes. There's also a good selection of enemy vehicles and aircraft, and even enemy troops that will try to spoil your day. All in all, the missions are executed very well. The Hind also has a second cockpit, for a Weapons Systems Operator (a gunner to you or me). Normally, you can make use of a computerised "silicon WSO" to target baddies, but if you have a Mac network and two copies of *Hind*, you can fly as a pilot with a friend acting as your gunner, or vice-versa.

How similar is *Hind* to *Apache Longbow?* Very, is the short answer, but this is no bad thing. It's fun and taxing to play, with a variety of missions in which to test your skills – and some great scenery thrown in too. If you've already got *Apache Longbow*, then *Hind* may be a bit too much of the same (unless you're a real helicopter fanatic). But if you don't yet own either, then there's a great choice here, between the technology of *Apache Longbow* and the brute force and cunning of *Hind*. **MF**

Hind

An interesting view from the side that's normally regarded as the enemy, and a solid and engaging flight sim to boot.

Graphics	**91%**
Sound	**68%**
Gameplay	**82%**

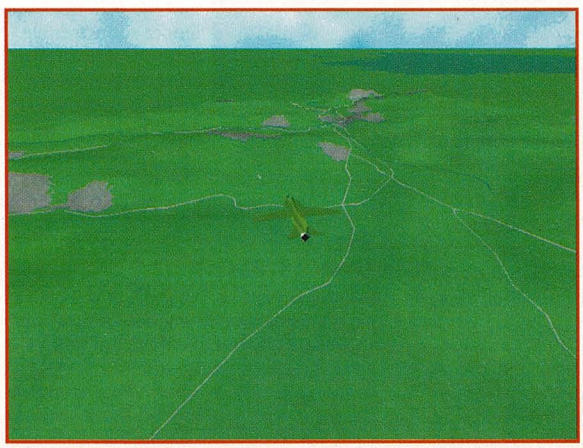
MF rating 88%

Golden Hinds

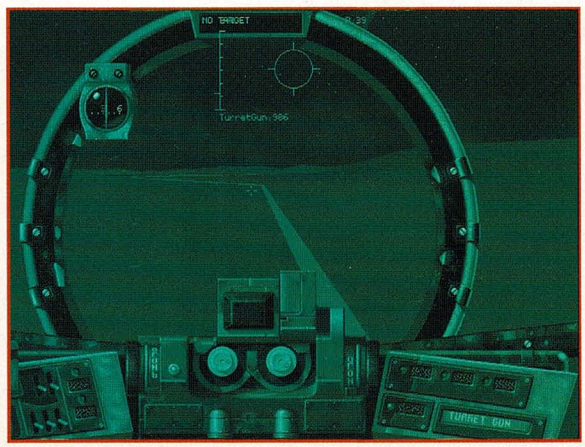
The Mi-24 (NATO codename "Hind") was first seen by Western observers in 1974. A souped-up version of the Hind was the machine used to set the speed record for a woman helicopter pilot (it says here).

Furthermore...

The forerunner in Mac helicopter flight sims was *Apache Longbow*, also made by Digital Integration. It was reviewed in MACFORMAT 41, and scored a whopping 92%, earning a MACFORMAT Classic award. If you missed that issue, turn to page 144.



You can mount air-to-air missiles to your Hind, which is just as well, with enemy MiGs like this one prowling around.



Nightfall needn't mean you have to stay on the ground. Both the pilot and the gunner modes have infra-red vision devices.

PRICE	£39.99	**ON SALE**	Now	**CONTACT**	Phillips Media on 0171 911 3161	**WEB SITE**	http://www.im.gte.com/titanic/index.html/
MAC	**Processor:** 68040 • **RAM:** 8Mb (16Mb recommended)	**POWERMAC**	**Processor:** any • **RAM:** 8Mb	**REQUIRES**	**System:** 7.1 • **Screen:** 640 x 480 • **Colours:** 256 • **Extras:** 2x speed CD-ROM drive		

Titanic
Adventure Out of Time

"Oh it was sad (so sad), it was sad (so sad), it was sad when the great ship went down..." This is your chance to change history, avoid *that* iceberg and save the Titanic. All aboard...

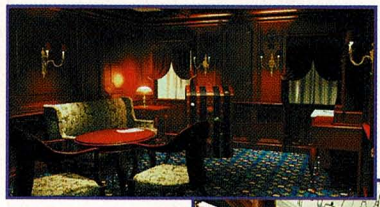
Boats and disasters – in the real world, just as in Hollywood – go together like a horse and carriage. Yet apart from *Prisoner of Ice* (MACFORMAT 42), the old "adventure at sea" is not a genre that has been highly exploited in the Mac market. But if you're going to use it, then the Titanic is the ultimate setting for an ocean-going yarn.

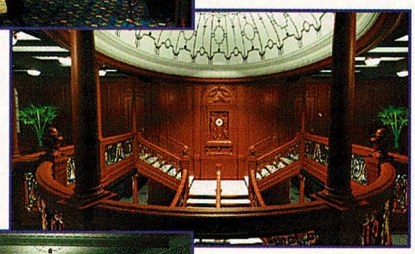
The wireless room figures in your plans to save the liner... but how? And when? And can you trust the Communications Officer?

Titanic: Adventure Out of Time is a 3D adventure game. It comes on two CD-ROMs, and so promises either loads of action or endless tedium. In fact, it's a point-and-clicker in a dapper dinner jacket, and it looks a treat, apart from some dodgy character digitisation. This software could also be worth half its asking price as an educational piece alone, since it is packed with facts, figures, models, maps and charts – fascinating, if you trust its accuracy. Shame, then, that an early communication includes the word "Bastards", spoiling the tidy educational possibilities for youngsters.

In the game, you are Carlson, an ex secret agent, dismissed after the sinking of the Titanic. You find yourself in London, immediately prior to WW2. Not a cliché is missed – there's a portrait of Winston Churchill, a "Nazi Bombers" tabloid headline and even powdered eggs in the cupboard. With the assistance of time travel (or is it a flashback, or a dream, or magic? More likely a dreadfully flimsy plot device), you find yourself back on *that* boat the day before it hits *that* iceberg. While your initial brief is to recover a stolen book, as events unfold and characters chip in their tuppence-worth, it becomes apparent that there's more at stake. Suddenly it's April 12th, 1914...

The 3D modelling sets a precedent in quality and detail that production values in other areas of the game fail to meet.





All the 3D graphics are beautifully detailed works of art, and are based on the actual layout and design of the stricken boat itself.

"I was wondering when you'd come aboard – I have a letter for you, from Bruce Ismay, your host," says Smethells, your steward with the unlikely Edwardian butler's name, created by an American Anglophile. He slurs like a Scandinavian porn star and stares like a serial killer. "May I be of assistance?" he repeats.

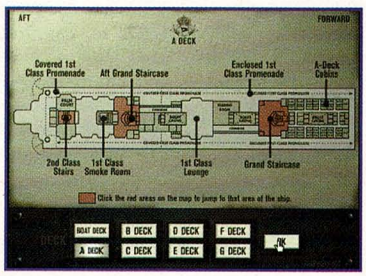
"This historic event, the very height of gracious and civilised travel in the 20th Century, promises to be one that we shall all remember for years to come," writes J Bruce Ismay, President and Managing Director of The White Star Line, owners of the Titanic and its identical twin the Olympic. Some theorists believe it was the Olympic that sank that April night, forced to keep its secret in its watery grave as part of an insurance cover-up – but interesting though that is, it's not what the game's about.

"Blah blah blah... Load the second CD... Blah blah blah... Press 'W' to go forwards... Blah blah blah... Log on to CyberFlix's Web site for updates," continues Smethells, without even being asked.

If you had been fooled by the plinky-plonky piano and buckets of Brylcream, the illusion is now shattered. "I'm sure that you'll find the Internet to be the latest in technology – just like the Titanic," he continues, raising a singularly spooky eyebrow. The in-joke is too clever by half. (Surely they don't mean "The Internet's doomed, just like the Titanic!" Keeps crashing, maybe...)

Try to blank this from your mind, and immerse yourself in the exploration of the ship. Femmes fatales, psychics, Nazis, priests and red herrings litter your adventure. A badly digitised lift attendant slips from dodgy accent to dodgy accent, Penelope Pringle is prim and proper, and Scotland Road, like all the other miles of corridors on the ill-fated vessel, is very long and relatively featureless, yet serves the functions of housing a well-coded mystery. Who is "the night owl", Mr Conclin? Will you make your contact? Who is your contact? Could you stop the vessel sinking? Can you change history? Or can you work out whether what you're doing is real or a mind game? This is more like it.

Meeting some characters is depressing: badly digitised footage of bad acting.



Some touches of detail are fitting in terms of style and useful for gameplay.

If you've got the aptitude to deal with adventure mysteries and the patience to ignore some terrible acting and frustrating lapses in production values across the game by the producers, then you'll find a highly addictive game within *Titanic*. Pity it hides so deep. **JOSSE BILSON**

Titanic – Adventure Out of Time

Smashing graphics, but some neat touches are ruined by shoddy animated sequences. The music's terrible, but there's a worthy adventure game lurking within.

Graphics	**79%**
Sound	**40%**
Gameplay	**69%**

MF rating 65%

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Rama

Cunning, intrigue and fun are all key elements in an adventure game. So does this new release have what it takes?

Arthur C Clarke's *Rama* series of books sit well in the "love or loathe" category. You might lap up every word describing the gargantuan, cylindrical Rama ship, or you might find it too tiring to plough through so much prose. Either way, a tale of discovery and adventure aboard a mysterious alien vessel should be ideal for translation to a computer game. After all, acres of locations to explore, artefacts to discover and tricky situations to overcome, all wrapped up in a series of puzzles and conundrums – isn't that what constitutes an adventure game?

Various specialists leave messages to welcome you to *Rama*. Obviously some chess tips are in order.

Rama places you as a new addition to the team investigating a huge ship that has drifted into the solar system. Your job is to liaise with 11 other experts to unravel the mysteries of the craft. Who built it? Where does it come from? What's it doing here? And where's it going to? To find out, you must search through various locations and find any alien artefacts that might shed light on these problems, which involves attempting to discover the intricacies of alien technology and language to open up new areas to explore.

All the signs point to *Rama* being a sprawling, involving quest, especially since the game comes on three CDs and you need 50Mb of hard disk space just to get started. Sadly, this turns out to be false hope. The reason for the huge volumes of data is the large number of video clips that pop up and bombard you with reams of information. You have to go through a dozen messages before you even know what you're doing there in the first place. After that, you move between various single-screen locations using the mouse, with the cursor switching to arrows if you move or turn in a particular direction.

Occasionally, the cursor also turns into a hand for grabbing or using objects. Some of these can be added to your inventory for closer investigation using the "oracle eyes", which enable you to spin an object and manipulate any functions that it may have. Stashing things in your inventory turns out to be a major part of the game with so much weird junk lying about. Also on hand is your wrist computer, which gives you access to mail messages, video archive material and maps of the local area.

Actually getting around *Rama* is a tortuous affair. The long loading times between each screen (not just each location) will cause all but the nippiest CD drives to stutter and chug, thus ruining any atmosphere that's been created. This wouldn't be so bad, but when animation and vital information sound bites are streamed from the CD at the same time, you can't tell what the hell is being said. Mind you, the video clips are dodgy at the best of times – poorly acted, dreadfully scripted and atrociously lip-synced, not to mention spurious and confusing.

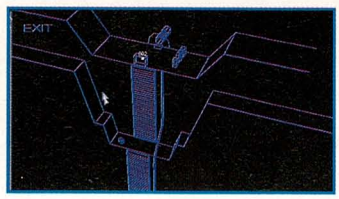
Even the puzzles are brain-meltingly dull. Your adventure seems to consist of finding a machine, poking at some buttons and then going somewhere else. When you do occasionally find an artefact, it tends to be just lying on the floor, giving no idea to what the puzzles are, never mind the solutions. You simply end up wandering from location to location and jamming objects wherever they might fit, in the forlorn hope that something vaguely interesting might happen.

Put bluntly, there's no sense of progression or achievement, no strong sense of plot and little in the way of wit or atmosphere. Has nothing been learnt in the wake of such classic LucasArts adventures as *Day of the Tentacle*? (MACFORMAT 33, 94%.) That's how to do a proper adventure – humour, a decent plot, an intuitive interface and well thought-out puzzles. Sorry, but slickly drawn backgrounds, reams of pre-rendered video and the odd appearance of a digitised Arthur himself are no substitute. Without much in the way of decent gameplay to boast of, *Rama* is, quite frankly, dull.

MAFF EVANS

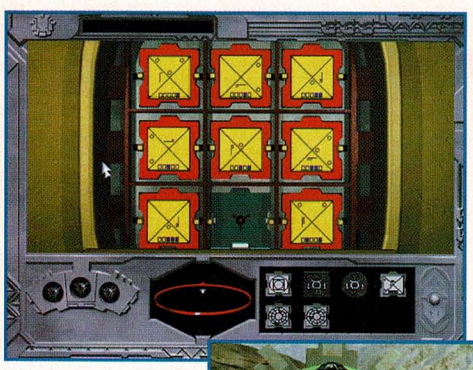
Forsooth!

To get some insight and observations on the various locations and artefacts, one of the team's scientists gives you a little helper. Strangely, the boffin has a predisposition to creating his techno helpers in the shape of Shakespeare characters – your own pocket pal being Puck. The man's obviously a nutter...



A schematic of the enormous *Rama* ship. Think of the inside of a loo roll on a somewhat larger scale.

As well as viewing "vidmails", you can use your high-tech wrist computer to access a map of the local area.



One of the puzzles involves finding the right panel to drop in here. But where is it? Your guess is as good as mine...

The dreaded "biots". These robots either ignore you or eat you – until you learn how to turn them off.

Rama

Occasionally pretty to look at, but in the main Rama is awkward, glitchy, long-winded, repetitive and tedious. Not terms associated with involving adventure games.

Graphics	**75%**
Sound	**51%**
Gameplay	**38%**

MF rating **51%**

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WarCraft II Beyond the Dark Portal Expansion Set

Are expansion sets valuable new resources for games that you've already invested in, or are they just ways of squeezing more money out of you?

When we reviewed *WarCraft II* back in MACFORMAT 45, it received a fully deserved 93%. Set in a fantasy world of knights, dragons and magic, it's a heady mixture of strategy, action, and silly made-up character names.

The storyline in the game revolved around a series of battles against an evil horde of orcs, ogres, dragons, and their furious elk. Sorry, that should be ilk. Existing in a different dimension, they gained access to the world of humans through the Dark Portal, a magical gateway created by a deranged wizard. Their equivalent of the Channel Tunnel, presumably. By the end of the original game, you had forced the horde back to the Portal before demolishing it.

But wait a minute. Would you believe it, this Dark Portal was a bit tougher than you thought and it wasn't really destroyed after all, just a bit dented. Worse still, the horde have learned how to create their own Portals to other dimensions. If they aren't stopped, they could destroy the entire universe. This is widely regarded in intellectual circles as a bad thing.

Griffins make ideal troops for knocking out key enemy positions before sending in the land forces.

The only possible option, then, is to create a £20 expansion set where you go on the offensive and journey through the Portal into their land. There's no shortage of storyline and padding about having to achieve certain key objectives, but the bottom line is that you have to wipe them out.

So, essentially what we have here is a shiny CD-ROM with another 24 scenarios and 50 new maps. There are no new enemies, no new buildings, no new tactics, just more scenarios. You do get a few new sound effects and there are new landscape graphics to represent the Horde's other dimension. For instance, mushrooms replace trees, the sea is green, and there's a general photographic negative feel to the place. Unfortunately, none of this is going to affect the gameplay of the original.

Although 24 scenarios may not seem a huge number, there are many hours of play to be had in each one as you try to discover the winning tactic. Even then it can take many hours to slowly build up your forces while suffering harassment from the enemy, until you are strong enough to launch your own assault.

The quality of the scenarios is high, with well-designed maps requiring a wide variety of tactics. Bearing in mind that you must own the original game, *Beyond the Dark Portal* assumes a high level of competence and doesn't waste your time with simple levels to ease you in. If we had a complaint about the original game, it might be that there were no difficulty options. And although we did manage to complete the expansion set, it was a frustrating struggle at times.

A good armada consists of rapid response destroyers, helicopter spies, submarine attack ships, and heavy defensive warships. And green sea.

So is *Beyond the Dark Portal* worth buying? The thing to bear in mind is that the original game comes with a map editor for you to create your own scenarios. Lots of fanatical gamers have duly done this, and you'll find many exotic and exciting scenarios posted on the Internet for you to download. So why pay good money for the official levels when you can create any number yourself, or download them free?

Well, creating your own level is a long and tedious process that is ultimately disappointing, since much of the fun of the game is not knowing what's waiting around the next boulder. Also, many of the levels on the Internet are frankly pretty poor, and you'll end up owing the phone company plenty of money as you download dozens of them trying to find a decent one.

What's more, most are designed exclusively for network play, which isn't much use at home, unless you network up your entire family with a Mac in every room. Mind you, when you do finally uncover a half decent single-player level, they can be entertainingly bizarre. The official levels tend to be rather more "realistic", although some may call them sedate.

The absence of any new features in *Beyond the Dark Portal* is the only real drawback – experienced fans of *WarCraft II* will fondly remember the day when they were first able to construct a mage's tower, or summon an undead warrior.

Finishing the original game felt like turning the final page of *Lord of the Rings*, and if you're like us you'll really be missing the characters and the compulsive enjoyment they brought. Now, for much less than the price of a separate new game, you can now bring old friends back to life and nostalgically relive those halcyon days of pillage and maiming. Brings a tear to the eye, doesn't it.

DEREK SMITH

The landscape may look a bit strange, but then this is another dimension of reality. Nice carpet, though.

Installation

When upgrading *WarCraft II* with *Beyond the Dark Portal*, you may experience problems with a crashy Mac. You can solve this by simply removing *WarCraft II* from your hard disk and then starting again from scratch.

WarCraft II

If you enjoyed the original (and you'd be alone if you didn't), this is tons more killing for not too much more cash.

Graphics	**85%**
Sound	**80%**
Gameplay	**92%**

MF rating 85%

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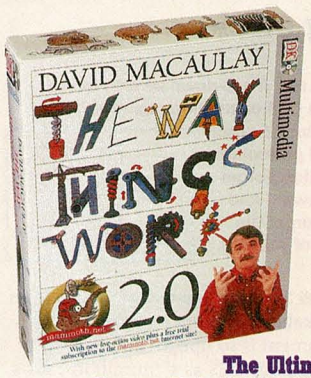

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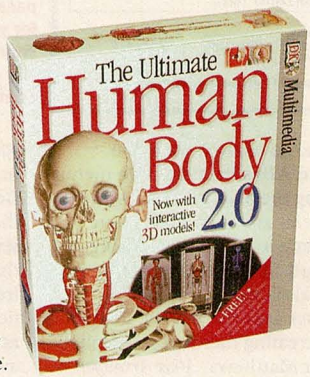

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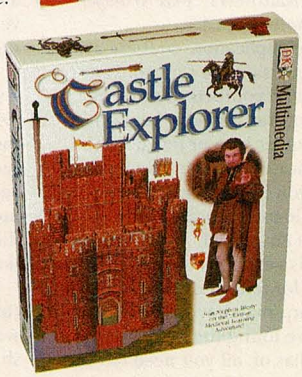

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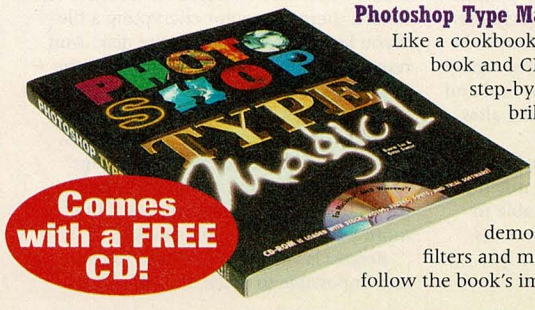

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SHAREWARE CENTRAL

From the sublime to the ridiculous – and that's just the jokes. Rod Lawton carefully prods another heap of shareware with a very long stick.

ON THE CD

Try out all of these programs on our Cover CD.

You never know what you're going to find when you launch a shareware program. Sometimes you wonder why people ever created them (except to make a fast buck), sometimes you wonder who on Earth is going to find a use for them (apart from industrial chemists in Norway), and sometimes you wonder why the program you're looking at isn't being sold in a fancy box at five times the price.

We cover the entire spectrum this month. If you're troubled by aliases, big brothers, memory, labels, aliens, pyramids, worms, geography teachers, garden design, invoicing or uniform resource locators, you'd better read this section.

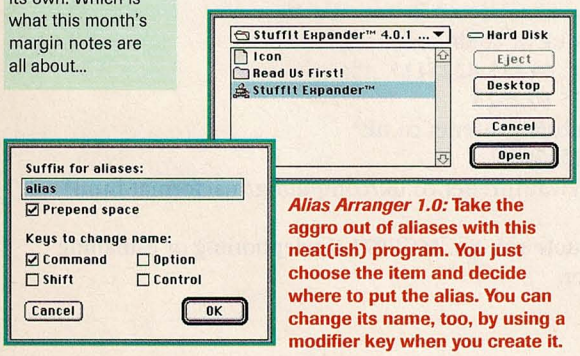
Exploit the Apple menu

Alias Arranger made us think. System 7.5 owners are lucky. You don't need lots of shareware Finder-enhancing gadgets, because with a bit of know-how you can make the Finder work pretty smoothly on its own. Which is what this month's margin notes are all about...

Alias Arranger 1.0

Utility
Shareware
Registration fee 5 Irish pounds

Creating aliases in the Finder is a long-winded process. You find the item you want to make an alias of, then you choose **Make Alias** from the **File** menu, then you drag the alias to where you want to store it, and then finally you have to rename it (unless you simply want the word "alias" stuck onto the end of the original filename).



Alias Arranger 1.0: **Take the aggro out of aliases with this neat(ish) program. You just choose the item and decide where to put the alias. You can change its name, too, by using a modifier key when you create it.**

Now, aliases are cool, but the Finder's method for creating them most definitely isn't. Alastair Matthews' *Alias Arranger* makes it a whole lot easier.

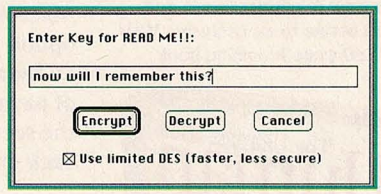
It's a simple application, so there are no System Extensions or Control Panels to install (and no conflicts to sort out). You can either drag a Finder item onto the Alias Arranger icon or just double-click the application. If you take the latter route, you have to use the standard **Find File** dialogue to locate the item you want to make an alias of. And the bad news with this version is that you can't create aliases for folders or volumes (future versions may have this facility).

Once you've found the item you want to make an alias of, all you need to do is choose where to store it. Several popular spots are preselected, or you can choose a different location and set up your own favourites. You can choose to have "alias" stuck on the end of filenames or not, and you can select a new name for the alias as you create it.

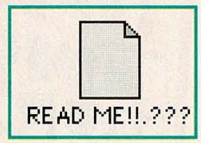
It isn't bad, but you'd have to be a pretty dedicated alias fan to get much use out of *Alias Arranger*. Not being able to make aliases of folders is a definite disadvantage, too.

What's shareware?

Shareware enables you to "try before you buy", and it's a great idea as long as you're honest. When you get shareware, the accompanying documentation will usually tell you how much it costs and where to send the money. It'll normally cost between US$5 and $40, and when you do pay, the author will often give you something for registering, such as a manual or updates. Freeware is just that – free – but the author keeps the copyright.



Enigma 2.6.1: **A cut-down version of the American DES encryption algorithm provides bullet-proof password protection for your files. Forget your password and you can forget the contents of your file.**



Enigma 2.6.1

Security
Freeware

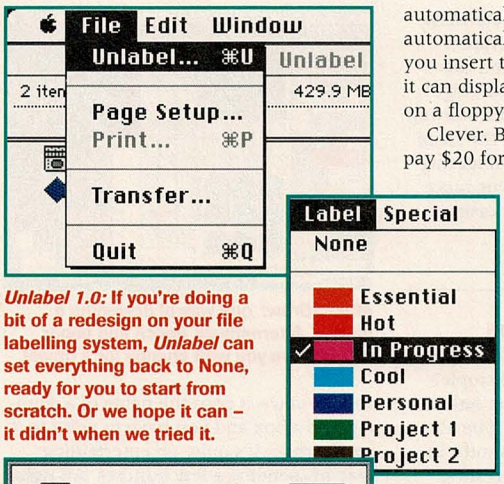
DES stands for Data Encryption Standard. It was developed in the States during the '70s with the help of the National Security Agency, and it has been uncrackable ever since. Indeed, the US Government is so uptight about security that it regards DES as a "munition". It's a serious offence to export any software that uses the full DES algorithms, so this freeware version of *Enigma*, a file encryption program, isn't quite as bullet-proof as the full-blown version, which is only available in the US and Canada. This version will only stop a tank, not a thermonuclear warhead.

It works a bit like a compression utility – you can encrypt single files or create "vaults" containing lots of files. In either case, if you forget your password, you can forget any hope of seeing your data again. This is very serious encryption indeed. There are no "back doors" and the computer that can crack DES encryption has yet to be invented.

If you're really serious about security (in other words if you have more to worry about than the office snoop), you should take a look at the manual, which makes some interesting observations. For a start, there's no point encrypting a file if you leave the original on the disk. And remember that simply chucking it in the Wastebasket won't actually eliminate it from your disk. Also, if you use virtual memory or a program like *RAM Doubler*, your hard disk may contain an "image" of a file even though it isn't recorded by the Mac's OS. The more you read, the more you feel, well, a bit spooked.

Enigma is very clever, simple to use and impossible to crack. It's difficult to

FreeRamPlus 1.0: **Well, it saves a trip to the About This Macintosh... menu option.**



Unlabel 1.0: **If you're doing a bit of a redesign on your file labelling system, *Unlabel* can set everything back to None, ready for you to start from scratch. Or we hope it can – it didn't when we tried it.**

imagine a better encryption system than this. If you subscribe to Fox Mulder's 'Trust No One" approach to life, you'll like this a lot.

FreeRamPlus 1.0

Utility
Shareware, registration fee $20

If you want to know how much free RAM you have without having to switch to the Finder and take your mouse pointer on that weary plod over to the **About This Macintosh...** menu option, *FreeRamPlus* is just the program for you. It's an application, so there are no Extensions or Control Panels to install – just make sure you put it in the Startup Items folder, says the author, to stop it fragmenting your memory.

FreeRamPlus displays a little box which shows you how much RAM is currently available. You can move this box around the screen until you find somewhere out of the way where you can see it all the time. Conveniently, it'll remember this position the next time you run it.

It has a couple of tricks up its sleeve, too. It can empty your Wastebasket automatically after six seconds, it can automatically open floppy disks when you insert them, and – rather cleverly – it can display the amount of free space on a floppy.

Clever. But not quite clever enough to pay $20 for. The author had some good ideas, but that price tag wasn't one of them.

Unlabel 1.0

Utility
Freeware

Labels are one of the Finder's more, er, esoteric features. But if you're one of those people who finds them unbelievably useful, you might be interested in this little gadget, which removes every label on your hard disk.

No... look, calm down... no, think about it. Every now and again we all see a better way of organising things, and sometimes you have to rebuild your personal filing system from the ground up. Yes? Exactly. And how long would it take you to root through the whole of your hard disk removing the labels by hand? Quite. So *Unlabel* might prove to be a rather useful little program. Except that when we tried it on one of our floppies it didn't work. Still, no harm done, eh? Good grief.

Galaxus 1.0.5

Game
Shareware
Registration fee 18 Swiss Francs

You can keep all your QuickTime movies, digitised sound and graphics and multimedia flipping jiggery-pokery, because we think you can't beat a good old vertically scrolling shoot-'em-up.

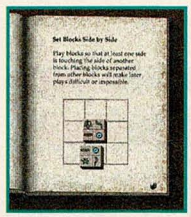
Except in the case of *Galaxus*, it's more of a vertically grinding shoot-'em-up. The scenery unrolls towards you more slowly than a roll of music emerging from an asthmatic pianola. Yes, the sprites are large and colourful, and move about smoothly, but the whole thing feels as if it's running in treacle. The collision detection is only fair to middling, too, which makes it even harder to drag your ship over towards the bad guys and actually hit them with your gun.

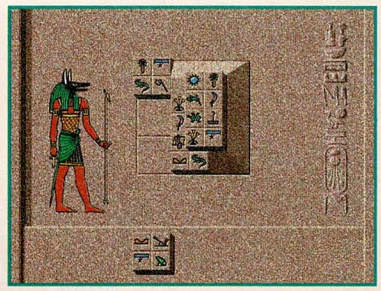
Galaxus 1.0.5: **Can you defeat the evil thingies? Only if you're a skilled pilot and can keep your spaceship away from the baddies. If you collect enough gold, you can go to the shop for extra weapons.**

Having said that, the baddies are varied, there are collectable power-ups to boost your weaponry and you can pop into the shop between missions to buy go-faster stripes and other life-enhancing goodies for your ship.

The demo version has three difficulty levels and three different missions (note that "missions" shouldn't be taken to mean there's any strategy involved). When you cough up your registration fee, you get the full set of 15 missions. You do get used to the somewhat glacial speed, and it isn't a bad little game.

Pyramad's **manual is another slick *Director* presentation, provided as a separate file. Read those strategy hints before you start.**





Ha ha – ran out of luck, didn't you? When you can't get a block to fit, this creepy-looking Egyptian geezer comes on to the screen to tell you the bad news.

Pyramad

Game
Shareware, registration fee $20

Macromedia's *Director* has made a name for itself as the industry-standard multimedia authoring package. However, it's also rather effective as a games creation tool, too – at least it is if *Pyramad* is anything to go by.

Pyramad is a mind-bending game which has you trying to match the hieroglyphics on the sides of stone blocks. The aim is to fill the first layer of a pyramid, and then the next, and so on. It involves a combination of luck and strategy – you need luck to get the right blocks, and strategy to make the best use of the blocks you're given. It's a bit like playing a game of patience, but with the odds more in your favour.

The demo version lets you play on a pyramid with a three-by-three grid and two or three layers. If you pay for the registered version you can play on four-by-four and five-by-five pyramids, too. There's also a tougher version of the game with an expanded set of symbols, just in case your brain isn't completely mangled by the standard option.

There isn't much to complain about, either. It looks wonderful, and it's well thought out, with lots of slick interface touches. The only clue that it wasn't created in a low-level programming language is the way the sliding stone doors sometimes act as though they have a bit of sand caught in the mechanism. Apart from that, it's a bit of a treat. And you can pay over the phone with your credit card, too. Nice one.

Xenia 1.0: **It's fast, it's furious and it's free. And if you get more than 300 yards into enemy territory, send us a postcard.**

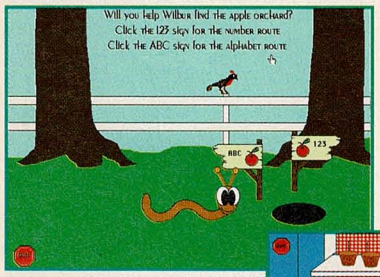
Xenia 1.0

Game
Freeware

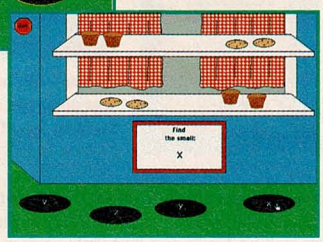
Look, how are you supposed to shoot... ach... these flipping things flying at ➤

Recent Documents

Don't neglect this item on the **Apple** menu. Along with **Recent Applications**, it can save you lots of tedious trekking through the Finder looking for files. Open the **Apple Menu Options** Control Panel to change the number of items stored in the menu.


Will you help Wilbur find the apple orchard?
Click the 123 sign for the number route
Click the ABC sign for the alphabet route
ABC
123

Wilbur Worm: **Do you need to test your alphabet skills or your basic numeracy? Wide-eyed Wilbur can help with both.**



I see it! I see it! I can see the small x! Me me me me... Get this right and Wilbur is one step closer to a crunchy apple. Well, yes, all right, worms don't step. One wriggle, then.

you from the top of the... whoooo... screen, while bombing those installations on the ground... DAMMIT!

Xenia is quite tricky. Like *Galaxus*, it's a vertically scrolling shoot-'em-up, but it's faster, much tougher, and doesn't have the frills. The bullets are hard to spot, too, which is a bit of a disadvantage when there are so many of them.

It's a good game, and all the better for being free. Go on, launch it – if you think you're 'ard enough.

Order, Order

Don't like the order of the items in your **Apple** menu? They're listed alphabetically, so there's nothing you can do about it... unless you use spaces, numbers or other characters to force them to sort differently. Or you can get the excellent shareware program *Amico 2.0* (on the MACFORMAT 44 CD), which enables you to choose your own order and even insert dividers.

Wilbur Worm

Education
Shareware, registration fee $10

That's enough game playing. Now it's time to do some learning, courtesy of *Wilbur Worm and the Apple Orchard*. He's here to help you recognise lower-case letters from their upper-case equivalents. And with every one you get right, he makes a cheery, encouraging remark and gets one step closer to a free apple.

If letters are just too easy peasy, you can go the numbers route instead. Your mathematical skills will then determine whether Wilbur gets his tasty Pippin.

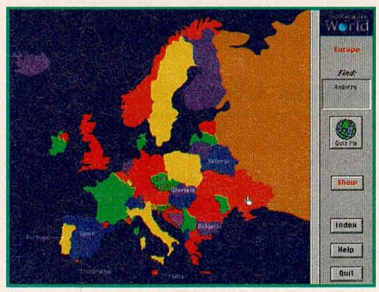
The graphics are simplistic and the puzzles short and easy, but it's the right length and style for little tots just starting school. $10 does seem a bit on the steep side, though, and you're left wondering whether you shouldn't be getting more than two short games for your cash.

GeoGenius World

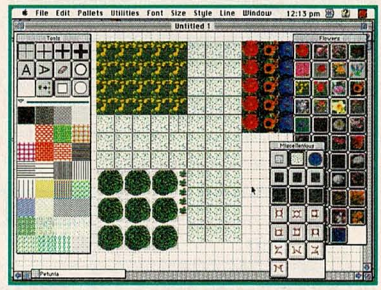
Education
Shareware, registration fee $16

How good is your geography? Could you find Belarus on the map, for example? How about Slovenia? Well, after half an hour or so with *GeoGenius* you'll be able to rattle off just about every country in Europe. Just imagine how interesting that would make you at parties.

GeoGenius is another educational program from Little Fingers Software, publisher of the Wilbur Worm games. This one, though, is aimed at an older audience. It doesn't set out to do much, but what it does, it does pretty well. You start with a map of the world and can choose an area to zoom in on. You can then see the names and boundaries of all the countries it contains. Or, if you're a bit of a boffin, you can get the program



GeoGenius World: **Zoom in on Europe and find out how much geography you know.**



MakeItGrow: **one way of designing a garden. Alternatively, pencil and paper would leave you with change for a trowel.**

to quiz you – it pops the name of a country into a box and you have to point to it on the map. It's quite an entertaining way of spending a few minutes. All right, yes, it took us three and a half days to find all the countries in Europe. It's because they're always moving them.

GeoGenius isn't bad, then, but $16 is $16 and you don't get an awful lot for your money. In terms of content, it's no better value than commercial educational software, and in terms of presentation, it's a little way behind.

MakeItGrow 1.7.1

Gardening
Shareware, registration fee $39.95

If you only ever get green fingers from clearing out the back of the fridge, then this program's not for you. If, however, you nurse some ambitions towards transforming your back garden from a derelict breaker's yard into a burgeoning paradise of plants, then this program could help. Or maybe not.

It's a garden-design application based around tiles. These are squares which can contain lettuces, flagstones, petunias, herbs and other things you might find in the average garden (no gnomes, inciden-

MultiTimer

Utility
Shareware, registration fee $15

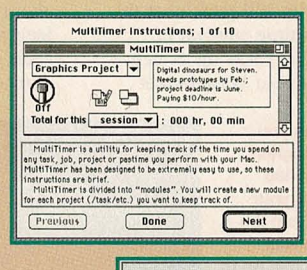
How much time do you waste playing games on your Mac when you should be working? How much should you charge your client for designing that brochure? Is the time you're spending drawing up your accounts cost-effective? There are lots of reasons why you might want to keep track of the time you spend on different Mac activities, and *MultiTimer* is the perfect tool for doing just that.

Star of the month

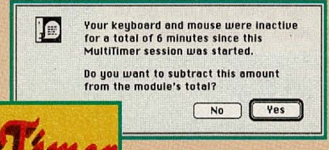
It's desperately simple to use. For a start, it's an application, so there are no Extension or Control Panel conflicts to worry about. And once it's launched, you simply choose the activity you're about to start from the pop-up list (or create a new one) and start the timer. *MultiTimer* works perfectly happily in the background and can even build up logs of usage so that you can check how much time you spend on a job, and when you worked on it. Whether you use logs or not, finding out how long you spent on an activity during the last session, day, week, month, year or since the activity was first started is easy – just choose the appropriate option in the pop-up menu in the main window.

If you want a constant on-screen reminder of just how long you've been slaving away, *MultiTimer* can also run in a minimised palette-style window in the foreground.

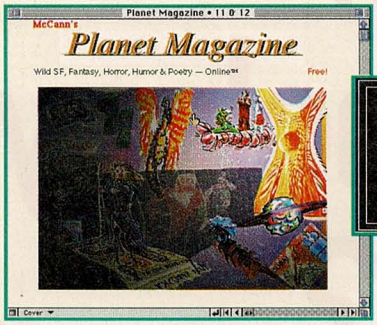
In the best traditions of Mac software, *MultiTimer* is a breath-takingly simple solution to a complicated and tedious activity – tracking the time you spend on different projects.


MultiTimer Instructions; 1 of 10
MultiTimer
Graphics Project
Digital dinosaurs for Steven. Needs prototypes by Feb.; project deadline is June. Paying $10/hour.
Total for this session : 000 hr, 00 min
MultiTimer is a utility for keeping track of the time you spend on any task, job, project or pastime you perform with your Mac. MultiTimer has been designed to be extremely easy to use, so these instructions are brief.
MultiTimer is divided into "modules". You will create a new module for each project (/task/etc.) you want to keep track of.
Previous
Done
Next

MultiTimer's **on-line help is as straightforward and easy to use as the application itself.**


Your keyboard and mouse were inactive for a total of 6 minutes since this MultiTimer session was started.
Do you want to subtract this amount from the module's total?
No
Yes

MultiTimer **will also eliminate time spent away from the keyboard if you want super-accurate timings.**



***Planet Magazine:* A sci-fi fanzine containing short stories and poetry, and a bit of a joke (huh) at the end.**

There is not enough mass on your disk to download this planet. An additional 886 KZB (KaZillion Bytes) is needed. Estimated download time is 3,127.4 years.
OK

tally), and you slap them down to build up your garden, square by square. There are basic drawing tools, too, with a range of fill patterns.

However, it's all a bit clunky and slow. So slow, in fact, that when you move a palette (the programmer likes to call them pallets) or change tiles, you think the Mac has crashed. It hasn't. The software is just working out what it was doing before you so rudely interrupted it. The floating palettes are weird, too, because they don't have "close" boxes, and we got one or two screen glitches as we tried to replace our granite patio with some tasteful concrete flagstones.

Nope, it's just a bit too odd and creaky. But then so are most gardeners.

Planet Magazine 11 & 12

E-zine
Freeware

Planet Magazine is a kind of sci-fi fanzine distributed electronically via the Internet. It contains short stories and poetry, mostly from unknown writers. The stories are a bit rough-edged for proper publication, but readable enough, and if you're a sci-fi author looking for a bigger audience you could do worse than get in touch. You'll find the distribution details you need in *Planet's* pages.

URL Manager Pro 1.4

Utility
Shareware, registration fee $25

This is more like it. *Internet Address Book* (see "In the Bin", below) might be a crude waste of time and money, but *URL Manager Pro* is something quite different. It's a polished, professional-standard application packed with useful features, neat shortcuts and quality design.

URL Manager is aimed at people who spend a lot of time on the Internet, and find their Web browser's existing bookmarking system too unsophisticated or too slow. *URL Manager* can track countless URLs, and you can store them in folders and subfolders many layers deep. This means you can organise your bookmarks the same way you organise items in the Finder. You can also access a history file containing up to 1,000 sites.

What's more, *URL Manager* links seamlessly with your Web browser, so double-clicking on a bookmark takes you straight to that site. And your browser displays a **URL Manager** menu too, enabling you to access the program's main functions without the inconvenience of leaving the browser.

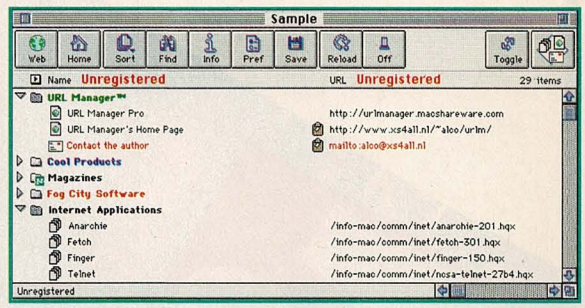
Don't worry about memory, either. *URL Manager* will run in 600K of RAM (although more might be needed if you have a big bookmark list). It will also fit on a floppy, together with your bookmark files. This means you can still access your favourite sites when you're working on someone else's computer – handy if you're always on the move.

You can also configure helper applications to handle ftp, e-mail and so on, although you'll need to download the freeware *Internet Config* application to set these up. You'll also need either *Netscape Navigator 3.0* or *Internet Explorer 3.0* to get the most out of *URL Manager*.

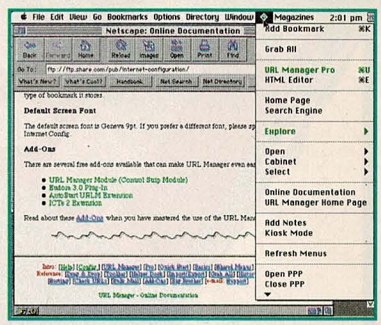
If you only have a few dozen bookmarks and don't spend all day on the Net, then your browser's bookmarking functions are going to be perfectly adequate. If you spend most of your working life on the Net, though, and need to keep track of tens or hundreds of sites, *URL Manager* has to be just about the slickest, quickest and best-designed way to stay organised. Brilliant. **MF**

Apple Menu Items folder

This folder is buried in the System Folder. If you often update the contents of your **Apple** menu, create an alias to this folder, then store it within the folder itself. Now you can open the **Apple Menu Items** folder by selecting it from the **Apple** menu!



***URL Manager Pro* enables you to store your bookmarks in multilevel folders as easily as you store items in the Finder.**



No Control Panels, no System Extensions, but *URL Manager Pro* still sneaks an additional menu into your browser. Clever.

HyperLaunch and Internet Address Book

HyperLaunch 1.11

Utility
Shareware, registration fee $15

Don't use the Launcher (free with System 7.5), use this *HyperCard* stack instead. It's black and white, it needs far more RAM and... now, what was the other thing? Ah yes, it doesn't work.

If it did work, it would enable you to create cards containing buttons which would open files or launch selected applications. That's not a terribly difficult thing for *HyperCard* to do, and it's pretty outrageous to expect anyone to pay $15 for it.

It doesn't work because most users only have the *HyperCard Player*. The script for creating buttons to launch apps and open files calls on a menu command which only exists in the full-blown commercial application.

In the bin

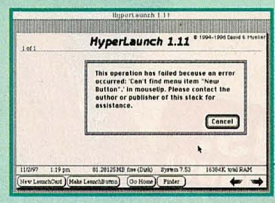
Internet Address Book 1.2

Utility
Shareware, registration fee $10

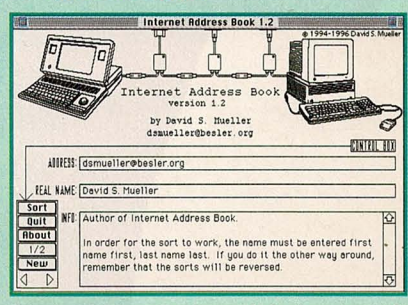
Pitiful. Outrageous. Disgraceful.

Nope, none of those words will do and we can't find anything else which comes close to describing this stack. In a nutshell, the author has created a *HyperCard* stack with a handful of fields and a dab of clip art, and wants unsuspecting users to fork out $10 for it. There's no tricky scripting, no hotlinks to Web sites, no interfacing with your Web browser...

No-one with *HyperCard* would have any difficulty generating something similar, and you could create a slicker, faster database in about 60 seconds using *ClarisWorks*, *Microsoft Works* or just about any database application. Utter tripe.


HyperLaunch 1.11
This operation has failed because an error occurred: 'Can't find menu item "New Button"' in mouseUp. Please contact the author or publisher of this stack for assistance.
Cancel

***HyperLaunch 1.1:* It's worse than the Launcher in every way we can think of, and doesn't work unless you have the full commercial *HyperCard* application (not just the *HyperCard Player*).**


Internet Address Book 1.2
© 1994-1996 David S. Mueller
Internet Address Book
version 1.2
by David S. Mueller
dsmueller@besler.org
ADDRESS: dsmueller@besler.org
REAL NAME: David S. Mueller
Sort
Quit
About
1/2
New
INFO: Author of Internet Address Book.
In order for the sort to work, the name must be entered first name first, last name last. If you do it the other way around, remember that the sorts will be reversed.

***Internet Address Book 1.2:* We're just worried some people might take this seriously.**

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All part of the service?

Does the manufacturer's responsibility end when it takes your money? Of course not. Rod Lawton explains why it's wise to pay close attention to the technical support you'll have available should things go wrong.

Hardware manufacturers and software publishers are falling over themselves to sell you their latest products – but when bad things happen, there's all too often an eerie silence on the other end of the telephone.

The fact is that after-sales service varies considerably – not just in quality, but in cost too. Companies that run well-staffed helplines crewed by experts usually charge you for the privilege of using them, citing the costs of maintaining these facilities as the reason.

Do you think you ought to pay for technical assistance? How long should it be available for? And if the worst comes to the worst and your Macintosh has to go back for repair, who pays the courier fee? Why can't an engineer come round to your house or office to fix it?

Buying Macintosh hardware and software involves more than just finding the right product at the right price. You also need to think about the kind of after-sales service you might need, and how much it's likely to cost.

Hello? Help...?

For a start, we all expect to be able to pick up the telephone the moment we have a problem, and for an expert on the other end to sort it out for us. You might imagine that buying application software, for example, should entitle you to indefinite advice. Or maybe it's something you've never thought about?

You should. Few software companies are prepared to absorb the cost of a permanently-staffed technical helpline. The cost of a knowledgeable operator, their office space and a phone line will be £30 per hour or more, and a single complicated technical query from one customer could wipe out the company's profit on that item. And what's to stop people with unauthorised copies of the software from phoning for free advice (largely because they don't have any documentation)?

That's why your first step with any new application should be to send off the registration form. If you don't register, you're likely to get precious little help from the technical helpline.

But even if you do register, you can expect to pay for telephone advice. Most companies offer 60 to 90 days of free assistance, but after that you'll be asked to pay a fee for further technical support over a fixed term (generally one year).

Trouble with your Macintosh? Call Apple Assistance on 0990 127753 and if you're registered, you'll receive telephone help.

Outraged? You might be – but look at it from the software company's point of view – all the time their technicians are on the telephone, it's costing money. And much of the advice handed out can typically be found in the manuals anyway, if people cared to look. That's what Quark Systems found, and why the company started charging for support for its already costly software after 90 days.

That's not the only question to ask, though. Take a look at the support number itself. It's common for companies to provide a FreeFone sales number, but if you find one that offers a free technical support number, we'd like to hear about it! Usually you'll have to pay standard telephone charges, which you'd expect, but do bear in mind you may have to pay long-distance rates, depending on where the technical-help department is based.

What you really do need to watch out for are companies which appear to make no charge for technical help, but in fact run it from a premium-rate number. The longer you spend on the phone, the happier they'll be. We don't know of any instances of this in the Mac market, but we know of at least one PC manufacturer which operates this way.

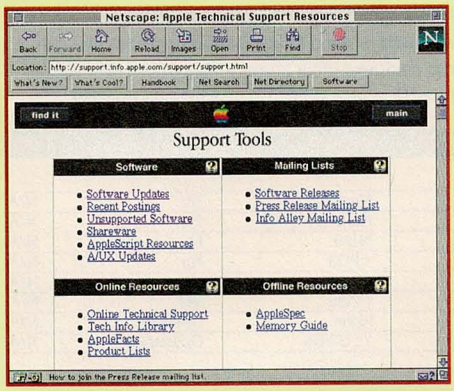
What if your software just won't work, or doesn't work properly? Now we enter one of the grey areas in computing. If your new software is incompatible with your System software version, should the publishers give you a refund? It's not always quite that simple.

The common reply is that it's a bug in the System software that's causing the problem and it's either down to Apple to fix it, or down to you to get a later version. Hmm – not altogether acceptable. Our advice is to check the box. If it doesn't specifically exclude your System version, then you've got the software publisher over a barrel. To be absolutely certain, tell the dealer

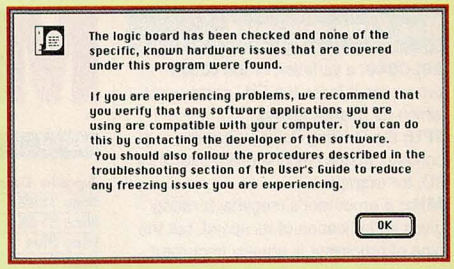
What to do if your hardware dies

1. Keep a detailed record of what goes wrong and when.
2. Note each of the dealer's attempts at repair, how long it took to get help after you asked, how long the repair attempt took and whether the problem was fixed (or understood!).
3. Don't delay! Problems don't get better and you don't get used to them. But the longer you delay in contacting the maker, the weaker your case for prompt action or a replacement.

These records will be invaluable later on if you have to try to convince the manufacturer that it should simply replace the faulty item. The more clearly you can demonstrate that it simply doesn't work and the engineers simply can't fix it, the stronger your case is.
4. One last thing – read the manual! Many of the problems you might encounter don't need the help of a qualified engineer, but simply a few minutes' work with the manual. But don't poke about and attempt repair yourself if the fault isn't obvious – that will almost certainly invalidate your warranty, or cause more harm.



Apple's Web site has a vast range of technical information and resources, all freely available. An Internet account could be the single best investment in technical support you make.


The logic board has been checked and none of the specific, known hardware issues that are covered under this program were found.
If you are experiencing problems, we recommend that you verify that any software applications you are using are compatible with your computer. You can do this by contacting the developer of the software. You should also follow the procedures described in the troubleshooting section of the User's Guide to reduce any freezing issues you are experiencing.
OK

The Internet is a great source of information. For example, we discovered Apple had developed a small application for spotting "rogue" processors in some 5200 and 6200 Performas – and that there is also a free repair scheme for affected users.

precisely what set-up you have when you go to buy, and specify that you want something to work with it. By law, goods must be "fit for the purpose" you specify when you buy, so if software turns out not to be fit to run with your set-up, you are entitled to a full refund.

Generally, though, programmers get away with it. You won't get a refund from Apple just because your System software is bugged, and you won't get a refund from software makers for bugs either – unless they are serious enough to stop the program working at all. It's more likely you'll be encouraged to put up with it, buy a newer version or download an "updater" from the Internet (usually free, apart from the connection costs).

If your washing machine simply stopped working every few days until you emptied it out and started again, you'd expect a replacement. If your software does something similar, you seem to have to rely on the benevolence of the publisher to do something about it. At some point. If enough people complain.

Hardware problems are another matter. Software either works or it doesn't, and if it does, it carries on working. Hardware, though, has a nasty habit of turning up its toes quite unexpectedly. So although you might expect to have to pay for hardware telephone support, there's a big distinction between tips or advice and sorting out something that's gone wrong. Macs are generally sold with a one-year warranty (Motorola offers *five* years on its Mac clones), and if yours goes wrong within that time, you can feel entitled to phone the dealer to sort it out.

It's broken!

So if your Mac stops working properly, what do you do? You can call your dealer, or Apple itself, to get advice, but it's likely the machine is going to need an engineer. (If your Mac is under warranty you must not attempt to fix it yourself.)

This is where most people discover they have a "back-to-base" warranty. These warranties mean you have to dig out the boxes your hardware came in, pack it carefully and arrange for a courier to come and collect it – at your expense. The machine will be repaired and returned to you, this time at Apple's expense. Sending a Mac half way across the country, incidentally, will cost you from £50 upwards.

On-site warranties are simpler. An engineer will call at your home or office, examine your Mac on the spot and either repair it right away, leave to fetch or order any necessary parts, or take the machine away. You save on the cost of a courier and your machine may well be fixed a lot faster.

On-site warranties have further, less obvious, advantages. With a back-to-base warranty you have to explain the problem over the phone and hope the technician on the other end can assess the fault from your description. It may prove pretty straightforward, but trying to describe the degree to which your display wobbles, say, or the magnitude of the rattle coming from your floppy drive, could prove pretty hard. When an engineer looks at your Mac on the spot, they can see the problem first-hand.

Disadvantages? Needless to say, on-site warranties cost extra. And given the general reliability of Macs, you probably won't need to make a warranty claim anyway. But when weighing up the pros and cons, bear in mind that on-site warranties are *much* better than the standard back-to-base offering.

Safety Net?

The Internet has revolutionised technical support, as well as just about everything else. And the technical help you can get from the Internet is, arguably, worth a year's subscription costs on its own.

For a start, most manufacturers and publishers now run their own Web sites, and most have user assistance pages, which can offer everything from FAQs (lists of Frequently Asked Questions), updates to counter known bugs or incompatibilities and e-mail addresses so that you can put your problem down in writing and send it in – much better than waiting to get through to a busy helpline and then having to describe the fault on the spot. You'll also get to hear about the latest updates and related products, and increasingly publishers are offering trial versions of their software for downloading via the Internet.

And if you check out Usenet, you'll find most major programs have a newsgroup all of their own – and here you'll quite probably find people who've encountered the problem you have right now and know what to do about it.

So, when buying hardware, check the sort of warranty you get with it – the standard back-to-base kind can cost you time and money, while more expensive on-site warranties are much more friendly.

As for software, don't assume you'll get indefinite telephone support. Check how long you do get, and the cost of subscribing to a longer-term support "contract". Lastly, you should seriously consider getting an Internet account if you don't yet have one. It's a way of finding out a great deal of information cheaply. Most companies are happy to make all their technical information freely available – it's paying for telephone technicians that they don't like. **MF**

In need of support?

Want to find out what sort of support you can expect from four leading companies? They all offer substantial help via FAQs, technical libraries and "knowledge bases" on their Web sites – but there's telephone help too, if you don't have a modem or the inclination to trawl the Web looking for the facts you need. Here's the latest information:

Apple

90-day support: Free telephone support covering all Mac hardware, valid for 90 days from the date of purchase (or one year for Performa products).
MacHelpline: Telephone support for any Mac hardware plus leading applications like Microsoft *Word*, *ClarisWorks*, *QuarkXPress* and more. Costs £112 per year.
AppleCare Premium Support: An optional addition to the standard 12-month back-to-base warranty on hardware, with the option to extend it for a further one or two years. It has to be taken out when you buy your equipment – you can't do it later. You get an on-site warranty with next-day attendance (but no guarantees about how long any repair might take). The cost depends on the equipment you've bought and the length of cover you want – speak to the Apple Assistance Centre on 0990 127753 for more information.

Claris

60-day support: Free telephone support for the first 60 days after you bought your software.
Claris Advantage Support: Designed for individuals, small businesses and education – you get unlimited free calls, priority access to experts and a quarterly technical journal. The cost for *FileMaker* support is £58, support for all other Claris products costs £34 and you can get both for £70. Call 0345 413060 for more information.

Adobe

Unlimited free support: It's true! If you're a registered Adobe user, you get free telephone support on most Adobe products.

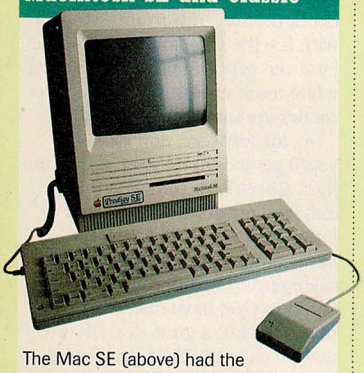
Microsoft

90-day support: Free telephone support for the first 90 days from your initial enquiry.
AnswerPoint Standard: A charge of £35 (ouch!) for each "incident" you need help with (desktop applications like *Word*, for example).
Priority Desktop: A charge of £116 for an annual "five incident" contract, or £323 for a "25-incident" contract.
Other plans apply for corporate users, and you can find out more on 01734 271000.

Mac Facts explained

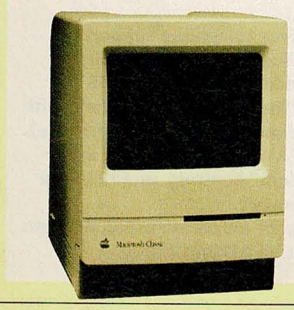
68LC040: a variation of the 68040 processor. It lacks the FPU component which its relative enjoys.
FPU: the Floating Point Unit speeds up complex maths calculations – useful for 3D, for example.
MHz: a processor's megahertz rating gives an indication of its speed, but the type of processor is equally important when you're comparing models.
NuBus: the Mac's traditional expansion slot. Outdated now, but there are still plenty of cards available.
PCI: Peripheral Component Interconnect is the expansion standard that has replaced NuBus – faster, cheaper (on the whole) and not likely to become redundant in the near future.
PC Card: formerly known as PCMCIA, it's the industry-standard expansion slot for portables. Lots of options.
PDS: the Processor Direct Slot is often used to upgrade your Mac's processor, but you can get other types of card, too.
PPC: PowerPC is the standard processor for all Macs nowadays. Broadly speaking, the 604e is the fastest, with the 604, 601, 603e and 603 trailing it – but compare those MHz ratings, too.

Macintosh SE and Classic



The Mac SE (above) had the longest production life of any Mac model other than the Mac Plus. Launched in March 1987, it stayed in production until October 1990. Despite its modest (by today's standards) 68000 processor, it represented the cutting edge of computing at the time.

In October 1990, Apple replaced the SE with the more affordable Classic (below). It was just about the first Mac a home user could afford to buy: it was neat, foolproof and well-specified at the time. In October 1991, when the Classic was discontinued in favour of the more expensive Classic II, that original, amazing 8MHz 68000 chip had been on active duty for seven years – quite a record.



Mac Facts

If you want to know if you can use a program we've reviewed or need to know what upgrades you can fit, our complete table of every Mac model ever should help. Current models are coloured blue-green.

Model	Processor	Speed	RAM/Max RAM	Expansion	FPU	Price
Apple Compact Macs						
Mac 128K	68000	8MHz	128K/not exp	None	No	N/A
Mac 512K	68000	8MHz	512K/not exp	None	No	N/A
Mac Plus	68000	8MHz	1Mb/4Mb	None	No	N/A
Mac SE	68000	8MHz	1Mb/4Mb	1 PDS	No	N/A
Mac Classic	68000	8MHz	1Mb/4Mb	None	No	N/A
Mac SE/30	68030	16MHz	1Mb/128Mb	1 PDS	Yes	N/A
Classic II (= Performa 200)	68030	16MHz	2Mb/10Mb	None	Optional	N/A
Color Classic	68030	16MHz	2Mb/10Mb	1 LC-PDS	Optional	N/A
Apple Mac II Series						
Mac II	68020	16MHz	1Mb/68Mb	6 NuBus	Yes	N/A
Mac IIx	68030	16MHz	1Mb/128Mb	6 NuBus	Yes	N/A
Mac IIcx	68030	16MHz	1Mb/128Mb	3 NuBus	Yes	N/A
Mac IIvi	68030	16MHz	4Mb/68Mb	3 NuBus	Optional	N/A
Mac IIsi	68030	20MHz	1Mb/65Mb	1 NuBus/PDS	Optional	N/A
Mac IIci	68030	25MHz	1Mb/128Mb	3 NuBus	Yes	N/A
Mac IIvx (= Performa 600)	68030	32MHz	4Mb/68Mb	3 NuBus	Yes (not 600)	N/A
Mac IIfx	68030	40MHz	1Mb/128Mb	6 NuBus, 1 PDS	Yes	N/A
Apple LCs						
Mac LC	68020	16MHz	2Mb/10Mb	1 LC-PDS	Optional	N/A
Mac LC II (= Performa 400)	68030	16MHz	4Mb/10Mb	1 LC-PDS	Third-party	N/A
Mac LC III (= Performa 450)	68030	25MHz	4Mb/36Mb	1 LC-PDS	Optional	N/A
Apple Centris series						
Centris 610	68LC040	20MHz	4Mb/68Mb	1 NuBus/PDS	Upgrade	N/A
Centris 650	68040	25MHz	4Mb/136Mb	3 NuBus, 1 PDS	Yes	N/A
Apple Performas (non-PowerPC)						
Performa 475 (= LC475)	68LC040	25MHz	4Mb/36Mb	1 LC-PDS	Upgrade	N/A
Performa 630 (= LC630)	68LC040	33MHz	4Mb/36Mb	1 LC-PDS	Upgrade	N/A
Apple Quadra series						
Quadra 610	68040	25MHz	4Mb/68Mb	1 NuBus/PDS	Yes	N/A
Quadra 660AV	68040	25MHz	8Mb/68Mb	1 NuBus/PDS	Yes	N/A
Quadra 700	68040	25MHz	4Mb/64Mb	2 NuBus, 1 PDS	Yes	N/A
Quadra 900	68040	25MHz	4Mb/256Mb	5 NuBus, 1 PDS	Yes	N/A
Quadra 650	68040	33MHz	4Mb/136Mb	3 NuBus, 1 PDS	Yes	N/A
Quadra 800	68040	33MHz	8Mb/146Mb	3 NuBus, 1 PDS	Yes	N/A
Quadra 950	68040	33MHz	8Mb/256Mb	5 NuBus, 1 PDS	Yes	N/A
Quadra 840AV	68040	40MHz	8Mb/128Mb	3 NuBus	Yes	N/A
Apple PowerPC Performas						
Performa 5200	PPC 603	75MHz	8Mb/64Mb	1 PDS	Yes	N/A
Performa 6200	PPC 603e	75MHz	8Mb/64Mb	1 PDS	Yes	N/A
Performa 5260	PPC 603e	100MHz	12Mb/64Mb	1 PDS	Yes	£939
Performa 5300	PPC 603e	100MHz	8Mb/64Mb	1 PDS	Yes	N/A
Performa 6320	PPC 603e	100MHz	12Mb/64Mb	1 PDS	Yes	£1,250
Family Mac 5400/160	PPC 603e	160MHz	16Mb/136Mb	1 PCI	Yes	£1,498
Family Mac 5400/180	PPC 603e	180MHz	16Mb/136Mb	1 PCI	Yes	£1,761
Home Office 6400/180	PPC 603e	180MHz	16Mb/136Mb	2 PCI	Yes	£1,710
Home Office 6400/200	PPC 603e	200MHz	16Mb/136Mb	2 PCI	Yes	£1,879
Creative Studio 6400/200	PPC 603e	200MHz	24Mb/136Mb	2 PCI	Yes	£2,584
Apple Power Macintoshes						
PowerMac 6100/60	PPC 601	60MHz	8Mb/72Mb	1 NuBus/PDS	Yes	N/A
PowerMac 6100/66	PPC 601	66MHz	8Mb/72Mb	1 NuBus/PDS	Yes	N/A
PowerMac 7100/66	PPC 601	66MHz	8Mb/136Mb	3 NuBus, 1 PDS	Yes	N/A
PowerMac 7200/75	PPC 601	75MHz	16Mb/256Mb	3 PCI	Yes	N/A
PowerMac 7100/80	PPC 601	80MHz	8Mb/136Mb	3 NuBus, 1 PDS	Yes	N/A
PowerMac 8100/80	PPC 601	80MHz	8Mb/264Mb	3 NuBus, 1 PDS	Yes	N/A
PowerMac 7200/90	PPC 601	90MHz	16Mb/256Mb	3 PCI	Yes	N/A
PowerMac 7500/100	PPC 601	100MHz	16Mb/512Mb	3 PCI, 1 PD	Yes	N/A
PowerMac 8100/100	PPC 601	100MHz	8Mb/264Mb	3 NuBus, 1 PDS	Yes	N/A
PowerMac 8100/110	PPC 601	110MHz	8Mb/264Mb	3 NuBus, 1 PDS	Yes	N/A
PowerMac 4400/160	PPC 603e	160MHz	16Mb/160Mb	2 PCI	Yes	N/A
PowerMac 4400/200	PPC 603e	200MHz	16Mb/96Mb	2 PCI	Yes	£1,174
PowerMac 8200/120	PPC 601	120MHz	16Mb/256Mb	3 PCI	Yes	N/A
PowerMac 8500/120	PPC 604	120MHz	16Mb/512Mb	3 PCI, 1 PD	Yes	N/A
PowerMac 9500/120	PPC 604	120MHz	16Mb/768Mb	6 PCI, 1 PD	Yes	N/A
PowerMac 9500/132	PPC 604	132MHz	16Mb/768Mb	6 PCI, 1 PD	Yes	N/A
PowerMac 7600/132	PPC 604e	132MHz	16Mb/512Mb	3 PCI	Yes	N/A
PowerMac 7300/166	PPC 604e	200MHz	16Mb/512Mb	3 PCI	Yes	£1,968
PowerMac 8500/180	PPC 604e	180MHz	16Mb/512Mb	3 PCI	Yes	N/A
PowerMac 7300/200	PPC 604e	200MHz	32Mb/512Mb	3 PCI	Yes	£2,379
PowerMac 8600/200	PPC 604e	200MHz	32Mb/512Mb	3 PCI	Yes	£2,567
PowerMac 9500/200	PPC 604e	200MHz	32Mb/768Mb	6 PCI	Yes	N/A
PowerMac 9600/200	PPC 604e	200MHz	32Mb/768Mb	6 PCI	Yes	£2,967
PowerMac 9500/180 MP	2 x PPC 604e	180MHz	32Mb/768Mb	6 PCI	Yes	N/A
PowerMac 9600/200 MP	2 x PPC 604e	200MHz	32Mb/768Mb	6 PCI	Yes	£3,759
DayStar Mac-compatibles						
Genesis MP LT 400+	2 x PPC 604e	200MHz	0Mb/1.5Gb	6 PCI	Yes	£4,346

Model	Processor	Speed	RAM/Max RAM	Expansion	FPU	Price
DayStar Mac-compatibles continued						
Genesis MP600	4 x PPC 604e	150MHz	0Mb/1.5Gb	6 PCI	Yes	N/A
Genesis MP720+	4 x PPC 604e	180MHz	0Mb/1.5Gb	6 PCI	Yes	£8,224
Genesis MP800+	4 x PPC 604e	200MHz	0Mb/1.5Gb	6 PCI	Yes	£9,399
Motorola Mac-compatibles (All available in desktop ("d") or mini-tower ("t") configuration)						
StarMax 3160	PPC 603e	160MHz	d16Mb, t32Mb/160Mb	*d* 3 PCI, *t* 5 PCI	Yes	N/A
StarMax 3180	PPC 603e	180MHz	d16Mb, t32Mb/160Mb	*d* 3 PCI, *t* 5 PCI	Yes	d£1.021, t£1,174
StarMax 3200	PPC 603e	200MHz	d16Mb, t32Mb/160Mb	*d* 3 PCI, *t* 5 PCI	Yes	d£1,291, t£1,468
StarMax 3240	PPC 603e	240MHz	32Mb/160Mb	5 PCI	Yes	£1,879
StarMax 4160	PPC 604e	160MHz	d16Mb, t32Mb/160Mb	*d* 3 PCI, *t* 5 PCI	Yes	d£1,644, t£1,938
StarMax 4200	PPC 604e	200MHz	d16Mb, t32Mb/160Mb	*d* 3 PCI, *t* 5 PCI	Yes	d£2,231, t£2,349
Power Computing Mac-compatibles (Some models available in desktop ("d") or mini-tower ("t") configuration)						
Power 100	PPC 601	100MHz	16Mb/256Mb	3 NuBus	Yes	£939
PowerBase 180	PPC 603e	180MHz	16Mb/***Gb	3 PCI	Yes	£1,174
PowerBase 200	PPC 603e	200MHz	16Mb/***Gb	3 PCI	Yes	d£1,291, t£1,291
PowerBase 240	PPC 603e	240MHz	16Mb/***Gb	3 PCI	Yes	d£1,526, t£1,526
PowerCenter 120	PPC 604	120MHz	16Mb/256Mb	3 PCI	Yes	N/A
PowerCenter 132	PPC 604	132MHz	16Mb/256Mb	3 PCI	Yes	£1,350
PowerCenter 150	PPC 604	150MHz	16Mb/256Mb	3 PCI	Yes	d£1,526, t£1,761
PowerWave 150	PPC 604	150MHz	16Mb/512Mb	6 PCI	Yes	N/A
PowerCenter 166	PPC 604	166MHz	16Mb/512Mb	3 PCI	Yes	N/A
PowerCenter 180	PPC 604	180MHz	16Mb/512Mb	3 PCI	Yes	£1,879
PowerTower 200	PPC 604	200MHz	16Mb/512Mb	3 PCI	Yes	N/A
PowerTower Pro 200 Lite	PPC 604e	200MHz	16Mb/1Gb	6 PCI	Yes	£2,462
PowerTower Pro 200	PPC 604e	200MHz	32Mb/1Gb	6 PCI	Yes	£2,579
PowerTower Pro 225 Lite	PPC 604e	225MHz	16Mb/1Gb	6 PCI	Yes	£2,579
PowerTower Pro 225	PPC 604e	225MHz	32Mb/1Gb	6 PCI	Yes	£2,814
PowerTower Pro 225 MP	2 x PPC 604e	225MHz	32Mb/1Gb	6 PCI	Yes	£4,106
Umax Mac-compatibles						
Apus 2000/160	PPC 603e	160MHz	16Mb/144Mb	2 PCI	Yes	£875
Apus Desktop Pro 2160	PPC 603e	160MHz	32Mb/144Mb	2 PCI	Yes	£1,374
Apus 3000/200	PPC 603e	200MHz	16Mb/144Mb	3 PCI	Yes	£1,204
Apus Movie Maker	PPC 603e	200MHz	32Mb/144Mb	3 PCI	Yes	£3,289
Apus Multimedia Studio	PPC 603e	200MHz	32Mb/144Mb	3 PCI	Yes	£3,289
Apus Pro 3200	PPC 603e	200MHz	32Mb/144Mb	3 PCI	Yes	£1,712
Apus 3000/240	PPC 603e	240MHz	16Mb/144Mb	3 PCI	Yes	£1,669
Apus Pro 3240	PPC 603e	240MHz	32Mb/144Mb	3 PCI	Yes	£2,173
Pulsar 150	PPC 604	150MHz	16Mb/1Gb	6 PCI	Yes	N/A
Pulsar 166	PPC 604e	166MHz	16Mb/1Gb	6 PCI	Yes	N/A
Pulsar 200	PPC 604e	200MHz	32Mb/1Gb	6 PCI	Yes	£2,556
Pulsar 225	PPC 604e	225MHz	32Mb/1Gb	6 PCI	Yes	£3,054
Pulsar 200 DP	2 x PPC 604e	200MHz	32Mb/1Gb	6 PCI	Yes	£3,406
Apple Portables						
Macintosh Portable	68000	16MHz	2Mb/9Mb	Modem slot	No	N/A
PowerBook 100	68000	16MHz	4Mb/8Mb	Modem slot	No	N/A
PowerBook 140	68030	16MHz	4Mb/8Mb	Modem slot	No	N/A
PowerBook 170	68030	25MHz	4Mb/8Mb	Modem slot	Yes	N/A
PowerBook 145	68030	25MHz	4Mb/8Mb	Modem slot	No	N/A
PowerBook 145b	68030	25MHz	4Mb/8Mb	Modem slot	No	N/A
PowerBook 160	68030	25MHz	4Mb/14Mb	Modem slot	No	N/A
PowerBook 150	68030	33MHz	4Mb/40Mb	Modem slot	No	N/A
PowerBook 165c	68030	33MHz	4Mb/14Mb	Modem slot	No	N/A
PowerBook 180	68030	33MHz	4Mb/14Mb	Modem slot	Yes	N/A
PowerBook 180c	68030	33MHz	4Mb/14Mb	Modem slot	Yes	N/A
PowerBook 165	68030	33MHz	4Mb/14Mb	Modem slot	No	N/A
PowerBook 520	68LC040	25MHz	4Mb/36Mb	Modem slot	Upgrade	N/A
PowerBook 520c	68LC040	25MHz	4Mb/36Mb	Modem slot	Upgrade	N/A
PowerBook 540	68LC040	33MHz	4Mb/36Mb	Modem slot	No	N/A
PowerBook 540c	68LC040	33MHz	4Mb/36Mb	Modem slot	No	N/A
PowerBook 190	68LC040	33MHz	8Mb/40Mb	2 PC card	No	N/A
PowerBook 190cs	68LC040	33MHz	8Mb/40Mb	2 PC card	No	N/A
PowerBook 5300	PPC 603e	100MHz	8Mb/56Mb	2 PC card	Yes	N/A
PowerBook 5300c	PPC 603e	100MHz	8Mb/64Mb	2 PC card	Yes	N/A
PowerBook 5300ce	PPC 603e	100MHz	8Mb/64Mb	2 PC card	Yes	N/A
PowerBook 5300cs	PPC 603e	100MHz	8Mb/64Mb	2 PC card	Yes	N/A
PowerBook 1400cs/117	PPC 603e	117MHz	12Mb/64Mb	2 PC card	Yes	£1,938
PowerBook 1400c/117	PPC 603e	117MHz	16Mb/64Mb	2 PC card	Yes	£2,231
PowerBook 1400c/133	PPC 603e	133MHz	16Mb/64Mb	2 PC card	Yes	£2,995
PowerBook 3400c/180	PPC 603e	180MHz	16Mb/144Mb	2 PC card	Yes	£3,641
PowerBook 3400c/200	PPC 603e	200MHz	32Mb/144Mb	2 PC card	Yes	£4,111
PowerBook 3400c/240	PPC 603e	240MHz	16Mb/144Mb	2 PC card	Yes	£4,816
Apple Duos						
PowerBook Duo 210	68030	25MHz	4Mb/32Mb	Modem slot	With Dock	N/A
PowerBook Duo 230	68030	33MHz	4Mb/32Mb	Modem slot	With Dock	N/A
PowerBook Duo 250	68030	33MHz	4Mb/32Mb	Modem slot	With Dock	N/A
PowerBook Duo 270c	68030	33MHz	4Mb/32Mb	Modem slot	Yes	N/A
PowerBook Duo 280	68LC040	33MHz	4Mb/40Mb	Modem slot	No	N/A
PowerBook Duo 280c	68LC040	33MHz	4Mb/40Mb	Modem slot	No	N/A
PowerBook Duo 2300c	PPC 603e	100MHz	8Mb/56Mb	Modem slot	Yes	N/A
Apple Duo Docking Stations						
PowerBook Duo MiniDock	-	-	-	None	No	N/A
PowerBook Duo Dock	-	-	-	2 NuBus	Optional	N/A
PowerBook Duo Dock II	-	-	-	2 NuBus	Yes	N/A
PowerBook Duo Dock Plus	-	-	-	2 NuBus	No	N/A

Apus Multimedia Studio

Umax's Apus Multimedia Studio is a terrific example of how far the Mac has come since the days of the SE and the Classic. It's not just that it has a new-generation PowerPC processor at its heart, nor that it has a healthy 32Mb of RAM. It's not even that it's a Mac made by a company other than Apple. It's the added extras, which have been carefully thought out to give you a full-scale multimedia studio for only £3,200.

Like every Umax computer, the Multimedia Studio now comes with a selection of Macromedia software. The Studio offers *Director 5* (above), the *FreeHand Graphics Studio* – which includes *Extreme 3D* and *xRes* – plus an audio-editing suite. There's also a limited version of *Photoshop* and *Toast*, the premier CD-pressing program.

The Multimedia Studio is much more than extra software shovelled into a sack, though. There's a 15-inch colour monitor from ViewSonic, plus a Matrox Millenium graphics card to help you create top-quality graphics more quickly. Umax has also included one of its own S6E colour scanners for getting images into your Mac.

The icing on the cake has to be the built-in CD-ROM recordable drive. The prices of drives you can press your own CDs on have crashed in the last few months, but this is the first Mac to offer one built-in. With this added to the whole package, the Umax Multimedia Studio looks like it deserves to fly out of the salesrooms.

Umax is also offering the Apus Movie Maker, which swaps the CD burning equipment for a Miro video card and a copy of Adobe's video-editing suite *Premiere LE*.

Contacts

For models still officially on sale, we've listed the current estimated street prices in the UK. All prices include VAT.

Prices are changing fast at the moment, and there are plenty of bargains to be had as older models are phased out. Contact the supplier below for the range you're interested in.

- **Apple Computer**
  Apple: 0800 127753
- **DayStar**
  Computers Unlimited:
  0181 358 5857
- **Motorola**
  Principal Distribution:
  01756 704444
- **Power Computing**
  MCM: 0171 724 4104
- **Umax**
  IMC Computer: 01344 871344

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Daystar n-POWER £1249

Description	Prices
Daystar n-POWER 350/180Mhz	£1249.00
Daystar n-POWER 400/200Mhz	£1399.00

Verbatim Media

CDR Disks £3.99*

*Min. Order20

Description	Prices
3.5" 512 bytes 128Mb Opt. Cart.	£7.99
3.5" 512 bytes 230Mb Opt. Cart.	£7.49
5.25" 1024 bytes 2.6Gb Opt. Cart.	£42
4mm 90m DAT Tapes	£4.50
4mm 120m DAT Tapes	£12.49
74 min CD recordable 650Mb	£4.99

Verbatim Toner

Verb. Toner £39.95

Description	Prices
Personal LS, SC, NT, NTR	£40.95
Personal 300, 320	£47.95
16/600 PS, Pro 600, 630	£59.95
IISC, INT, IIN TX, III, IIg	£39.95

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Description	Prices
Labtec 1020 9watts/50Hz/20khz	£37.00
Labtec 1022 10watts/45Hz/20khz	£43.00
Labtec 1224 10watts/45Hz/20khz	£59.00

HP Printers

Choose from the wide range of HP printers for the Mac, ranging from the 340 portable inkjet, through the colour inkjet 870cxi, up to lasers for all sizes of company networks.

DeskWriter 870cxi £319

Description	Prices
HP DeskWriter 340 Col Inkjet 3 pages per min	£159.00
HP DeskWriter 870cxi Col Inkjet 8 pages per min	£319.00
HP LaserWriter 6MP Laser 8 pages per min	£599.00
HP LaserWriter 4MV A3 Laser 16 pages per min	£1999.00
HP LaserWriter 5siMX A3 Laser 24 pages per min	£2699.00

Casio Camera

Casio QV10 £299

Description	Prices
QV 10 Camera	£299.00
QV 100 Camera	£419.00
QV 300 Camera	£599.00
QG 100 Digital Printer	£169.00

Apple Printers

Apple printers give the best quality output in either colour or black whether you're working on a company network, or at home.

LaserWriter 4/600PS £589

Description	Prices
Stylewriter 1500	£155.00
Colour Stylewriter 2500	£229.00
LaserWriter 4/600PS	£589.00
LaserWriter 12/640PS	£1099.00
LaserWriter 16/600PS	£1399.00
Colour LaserWriter 12/600PS	£4225.00

Agfa Scanners

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StudioScan £429

Description	Prices
SnapScan (600x300dpi)	£249.00
StudioScan (800x400dpi)	£429.00
StudioStar (1200x600 dpi)	£599.00
Arcus II (1200x600dpi)	£1459.00
DuoScan (1000x2000 dpi)	£2849.00

UMAX Scanners

UMAX is a technology leader in the design and manufacture of graphics-related products. The company produces a full line of desktop scanners for the PC and Macintosh.

£300 Cash Back

Powerlook II £1499

Description	Resolution	Tran Adp.	Photoshop	Prices
S6E Vista	600x300dpi	Optional	Option	£199.00
S12 Vista	1200x600dpi	Optional	Option	£399.00
Powerlook II	1200x600dpi	Yes	Full	£1499.00
Powerlook 2000	1000x2000dpi	Yes	Full	£2995.00
Mirage A3	1800x800dpi	Yes	Full	£5495.00

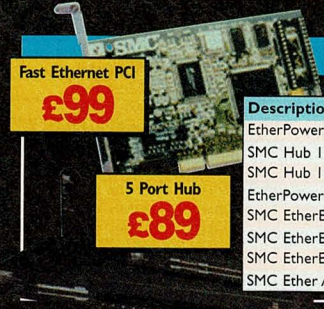
Visioneer Paperport

Getting paper off your desk and into your Mac couldn't be easier with a Visioneer Paperport*.

Visioneer Paperport £209

*FREE SCSI ADAPTER

SMC Ethernet



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5 Port Hub £89

Description	Prices
EtherPower 10/100 Dual Chan. Ethernet PCI Network Card	£179.00
SMC Hub 100-12 Port	£1199.00
SMC Hub 100-24 Port	£1949.00
EtherPower 10/100 Fast Ethernet PCI Network Card	£99.00
SMC EtherEZ Hub 5-Port	£89.00
SMC EtherEZ Hub 8-Port	£139.00
SMC EtherEZ Hub 16-Port	£279.00
SMC Ether Adapter Etherpower PCI Combo Card	£69.00

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Modular Tech. V.34 Modem (Mac)	£89.00
Modular Tech V.34 Modem (PC)	£89.00

Hermstedt ISDN

Leonardo XL £1495

Description	Prices
Leonardo XL PCI 4 Channel ISDN card PCI	£1495.00
Leonardo XL Nubus 4 Channel ISDN card Nubus	£1495.00
Leonardo SP PCI 2 Channel ISDN card PCI	£995.00
Leonardo SP Nubus 2 Channel ISDN card Nubus	£995.00
Pinocchio Std LC Card 2 Channel ISDN card LC Machine	£595.00
Pinocchio Std LC Card 2 with fax modem	£895.00
Hermstedt Andante Ext. ISDN adapter - no slot	£495.00
Hermstedt Pan Add on 36.6k fax/modem for XL and SP board	£350.00

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Description	Prices
Xyratex 540Mb MaxIT Drive (incl. 3 disks on blue MaxIT)	£249
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MACFORMAT Classic

2Gb External Drive £279

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Description	Prices
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Adobe Illustrator 6.0	£ 265.00	Insignia S/W 95 + 8Mb Simm	£ 209.00
Adobe Pagemaker 6.5	£ 399.00		
Adobe Pagemill 1 for Mac	£ 65.00		
Adobe Pagemill 2 for Mac	£ 62.00		
Adobe Photoshop 4 for Mac	£ 399.00		
Adobe Sitemill	£ 129.00		
Adobe Streamline 3.1	£ 89.00		
Aladin Suffit Deluxe 4	£ 80.00		
Alien Skin Black Box Plug-in	£ 55.00		

Claris Draw for Mac	£ 99.00	Macromedia Director for Mac	£ 739.00
Claris E-Mailer 1.1 for Mac	£ 53.00	Macromedia Dir. Studio Mac	£ 799.00
Claris Filemaker Pro 3 for Mac	£ 152.00		
Claris Filemaker Pro Server Mac	£ 759.00		
Claris Homepage 2 for Mac	£ 70.00		
Claris Organiser 2 for Mac	£ 53.00		
Claris Works 4 for Mac	£ 99.00		
ClarisImpact for Mac	£ 99.00		
Connectix Ram Doubler	£ 35.00		
Corel Draw Suite	£ 259.00		
Corel Draw Suite Upgrade	£ 89.00		
Corel PhotoCDs 10pack	£ 45.00		
Corel Web Gallery	£ 33.00		

Macromedia Freehand for Mac	£ 349.00	Dantz Retrospect 3	£ 199.00
Macromedia Freehand Studio Mac	£ 429.00	Dantz Retrospect Remote 3	Call
Metal Tools Bryce 2	£ 135.00	Dataviz MacLink Plus Translators	£ 83.00
Metal Tools Convolver	£ 95.00	Deneba Canvas 5	£ 269.00
Metal Tools Goo	£ 39.00	Fractel Detailer	£ 265.00
Metal Tools KPT 3	£ 95.00	Fractel Painter 4	£ 309.00
Metal Tools Vecter Effects	£ 95.00	Fractel Poser	£ 139.00
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Persuasion 4 for Mac	£ 199.00	Insignia SoftWin 3 + 8Mb Dimm	£ 189.00
Photo Deluxe 1 for Mac	£ 72.00		
Plasmon InCat for Mac and PC	£ 59.00		
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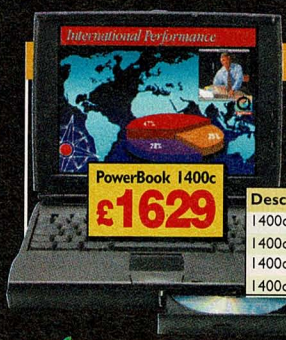

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- 117 or 133Mhz 603e
- 12Mb or 16Mb RAM (up to 64Mb)
- 750Mb or 1.1Gb HD
- large 11.3in SVGA display (active matrix on 1400c)
- Internal 6 speed CDRom
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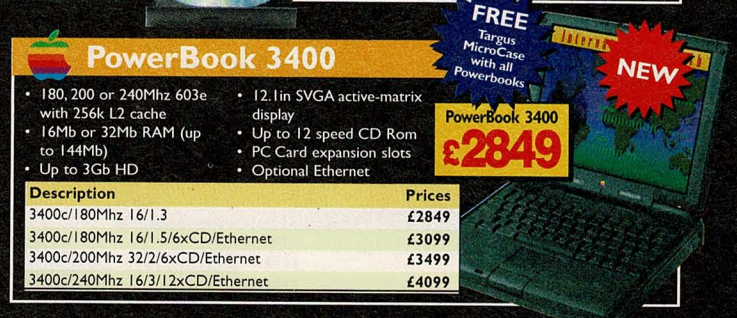
Description	Prices
1400cs/117 12/750	£1629
1400cs/117 16/750/CD & Colour SW2200 & case	£2099
1400c/117 16/1.1/CD (active matrix screen)	£2099
1400c/133 16/1.1/CD (active matrix screen)	£2549



PowerBook 3400

- 180, 200 or 240Mhz 603e with 256k L2 cache
- 16Mb or 32Mb RAM (up to 144Mb)
- Up to 3Gb HD
- 12.1in SVGA active-matrix display
- Up to 12 speed CD Rom
- PC Card expansion slots
- Optional Ethernet

Description	Prices
3400c/180Mhz 16/1.3	£2849
3400c/180Mhz 16/1.5/6xCD/Ethernet	£3099
3400c/200Mhz 32/2/6xCD/Ethernet	£3499
3400c/240Mhz 16/3/12xCD/Ethernet	£4099

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Description			Prices
Multiscan 15AV	15in	1024x768pixels	£359
Multiscan 1705	17in	1024 x768pixels	£449
Multiscan 1710 Trinitron	17in	1280x1024pixels	£519
Multiscan 1710AV Trinitron	17in	1280x1024pixels	£599
Multiscan II 20 Trinitron	20in	1280x1024 pixels	£1125

Viewsonic Monitors

Description			Prices
Viewsonic 14E 641	14in	800x600 pixels	£169
Viewsonic 15 GS	15in	1024 x768 pixels	£249
Viewsonic 17 GS	17in	1152x870 pixels	£439
Viewsonic 20G800	20in	1600x1200 pixels	£799
Viewsonic PT770	17in	1280x1024 pixels	£559
Viewsonic PT810	21in	1600x1280 pixels	£1179
Viewsonic P810	21in	1600x1280 pixels	£1139

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The DIAMONDTRON CRT takes Trinitron™ technology to new levels of excellence delivering more accurate, sharper images. Mitsubishi offers a 3 year return to base warranty, with 24-hour replacement in the first year.

Description				Prices
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Diamond Scan 17HX	17in	1024 x1024	FST	£425
Diamond Pro 67TXM	17in	1280x1024	Diamondtron	£425
Diamond Pro 87TXM	17in	1280x1024	Diamondtron	£475
Diamond Pro 91TXM	21in	1600x1280	Diamondtron	£1099

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ProNitron 17/400 17" Trin.	£485
ProNitron 20/600 20" Trin.	£999
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ProVision 4/80 PCI Card 128 Bit 8Mb 1920x1080/72Hz	£399
ProFormance 80 PCI Card 128 Bit 8Mb 1920x1080/72Hz	£639

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- 200Mhz PPC 603e processor (optional 256k L2 cache)
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Description	Prices
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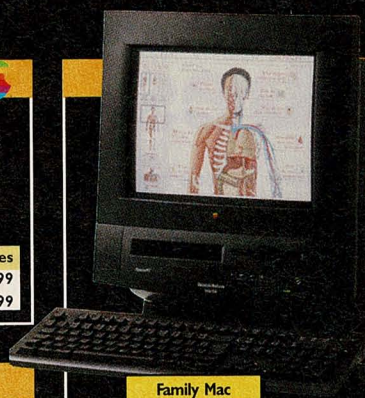
4400/200Mhz 16/2000/CD/L2/Ethernet/2MbVRAM	£999



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Performa Range

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- 1024x768 pixels on Performa 6400
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Description	Prices
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Family Mac 5400/180 16 1.6Gb/CD/TV	£1399
Home Office 6400/180 16/2.4Gb/CD	£1049
Home Office 6400/200 16/2.4Gb/CD	£1199
Creative Studio 6400/200 24/2.4Gb/CD	£1749

Home Office £1049

PowerMac 7300

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- 16 or 32Mb RAM (upto 512Mb)
- Fast 2Gb Hard Drive
- 2Mb Fast 64bit VRAM upto 4Mb (1280x1024)
- Fast SCSI (up to 10Mb/s)
- Internal 12 x CD Rom
- 3 PCI expansion slots
- Built-in Ethernet
- 256k Level 2 cache
- Apple Internet Kit
- Mouse & keyboard

NEW

PM 7300 only £1649

Description	Prices
7300/166Mhz 16/2000/CD	£1649
7300/200Mhz 32/2000/CD	£1999

NEW

PM 8600 only £2149

PowerMac 8600/200

- 200Mhz PPC 604e with 256k L2 cache
- 32Mb RAM (up to 512Mb)
- Fast 2Gb Hard Drive
- 2Mb Fast 64bit VRAM up to 4Mb (1280x1024)
- Fast SCSI bus (up to 10Mb/s)
- Internal 100Mb Zip Drive
- Internal 12 x CD Rom
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Description	Price
8600/200Mhz 32/2000/CD	£2149

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- Choice of 3 Models:
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Apus 3000/200 16/2Gb/CD	£1099
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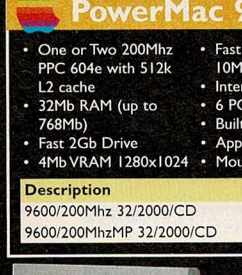

NEW

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- Mouse & keyboard

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Description	Prices
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Pulsar 225 £2599

UMAX Pulsar

- Choice of 3 Models:
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- 16Mb RAM, up to 1Gb
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Description	Prices
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MOTOROLA Motorola Starmax

Description	Processor	Configuration	Prices
3180 Desktop	180Mhz 603e	16/1.2Gb/CD	£ 869
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3200 Desktop	200Mhz 603e	16/1.2Gb/CD	£ 1099
3200 Minitower	200Mhz 603e	32/2.5Gb/CD	£ 1249
3240 Minitower	240Mhz 603e	32/2.5Gb/CD	£ 1599
4160 Desktop	160Mhz 604e	16/1.2Gb/CD	£ 1399
4160 Minitower	160Mhz 604e	32/2.5Gb/CD	£ 1649
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Buyer's guide to best buys

Here are over 160 of the best Mac buys on the market, based on MACFORMAT's own authoritative, independent product tests. If you want more information on any product, ring the contact listed or refer to our original review – if you need to order an issue you missed, turn to our back issues service on page 144.

All prices quoted include VAT – check the ads in this issue for the best current deals. Where we reviewed an earlier version of a product, this is noted in the comment line. Although we quote the ratings from our original review, the comments about each item are based both on that review *and* how we see the product now. *Word 6* might be just as good now as when we reviewed it in MACFORMAT 20, but the competition has developed.

Note that some details may have changed since we first reviewed these products – hardware in particular is updated and improved regularly. The information in these listings has been thoroughly checked and is correct as we go to press, but prices and specifications can change at any time. Always make enquiries before you buy, to verify that the product you're considering will meet your needs.

MF CLASSIC We give the MACFORMAT Classic award only to products that set the standards for others to follow.

Buying Advice

Whether you're buying in person or by mail order, here's how to make the transaction go as smoothly as possible, and put things right if they go wrong. Note that everything here applies to buying from a business; most of it does *not* apply if you're buying from a private seller in MACFORMAT's reader ads pages.

How to protect yourself

If you are buying goods worth more than £100 in total, always use a credit card if possible, for the whole or even just a part of the price. That way, in the unlikely event of anything going wrong, you'll be legally entitled to claim against the credit card company as well as the seller. (You won't get your money back twice, of course, but the credit card company is likely to be there to claim against, even if the seller has gone bust.) You might also get extra insurance for your purchase – check with your credit card company.

If you don't have a credit card, pay by cheque or postal order (ask at your post office). Never send cash through the mail, even by registered mail. Apart from any risk of theft, you can't stop payment if you need to, and even if you have proof of posting, it is impossible to prove how much you sent.

Keep records. If you're paying by credit card over the phone, keep a note of the exact time of the order and the name of the person who took it, and ask for an order number. If you're paying by cheque, make sure you fill in the details of the date, amount and payee's exact name on the stub – and keep it somewhere safe! Always keep all receipts, and make notes of all correspondence by mail or phone.

Other sensible precautions

- Shop around for the best price and check what is included. Packing and delivery? Any necessary cables? VAT? By law, an advert must say *explicitly* if VAT is *not* included; if it doesn't, VAT *is* included. But this can be in the small print, so do check.
- If you're buying by mail, ring first to confirm price and availability. Explain what you want the product for and satisfy yourself that you're getting what you need – you can't return something later just because you've changed your mind. Ask what the dealer's policy is should you have problems – few mail-order dealers offer "on-site" service. Find out when you can expect delivery.
- If you're buying in person, check that everything works before you leave the shop. If you've ordered by mail, check the goods carefully when they arrive. If the driver's in a hurry, mark the delivery note "Goods not inspected". If there's any part of the product you're not happy with, don't use it. If you do, you could be deemed to have accepted it.
- Whether you bought it by mail or in a shop, the law says a product must be:

1. "Of satisfactory quality" (that is, broadly speaking, it must work);
2. "As described" (in the advert or in

➤

Storage media

What do you do when your hard disk is full to the brim? External storage devices can provide much-needed extra storage capacity or become a portable storehouse for vast quantities of data.

Name	Price	Rating	Reviewed	Contact	Telephone
Electronique d2 640Mb MO	£551	80%	MF48	Electronique d2	0171 833 0009
A respectable 3.5-inch magneto-optical drive, which is let down by its price and documentation.					
Electronique d2 2.6Gb MO	£2,114	83%	MF43	Electronique d2	0171 833 0009
A fast and neat magneto-optical drive, but it's expensive and comes with only basic software and poor documentation.					
Electronique d2 2Gb AV HD	£512	90%	MF43	Electronique d2	0171 833 0009
MF CLASSIC A stylish external hard disk with minimal documentation; basic driver software, but lightning-fast.					
Electronique d2 540 MCD	£288	83%	MF48	Electronique d2	0171 833 0009
One of the faster magnetic cartridge drives around, with full formatting and driver utilities.					
Gasteiner 1Gb HD	£293	90%	MF34	Gasteiner	0181 345 6000
MF CLASSIC A fast, cheap and compact hard drive, but with an extremely noisy fan.					
Iomega Zip Drive	£141	81%	MF48	Iomega	0800 973194
A well-established, cheap 3.5-inch 100Mb drive that feels a bit creaky and is looking rather slow in this day and age.					
MicroNet Jaz Drive	£469	94%	MF43	MicroNet	01926 470460
MF CLASSIC The successor to the Zip drive uses astonishing 3.5-inch 1Gb cartridges and is fast, portable and cheap.					
Olympus 230Mb PowerMO	£351	91%	MF43	Mac & More	01442 878900
MF CLASSIC A compact 3.5-inch magneto-optical drive that's neat, fast, cheap, and comes with a long-term warranty.					
ONE Tech 2.6 Optical Drive	£1,268	95%	MF34	MacTrix	0181 566 8988
MF CLASSIC Pretty fast, quiet, inexpensive and hard to fault. We reviewed the ONE Tech 1.3Gb MO.					
Performance Direct 2Gb HD	£375	92%	MF43	Performance Direct	01784 477477
MF CLASSIC An inexpensive and functional-looking hard disk which comes with excellent driver software.					
Quantum Fireball 1.2Gb HD	£269	88%	MF34	Performance Direct	01784 477477
A quiet, very fast hard drive with a good-length SCSI cable. We reviewed the Quantum Fireball 1Gb HD.					
Xyratex 5000 2.6Gb MO	£1,409	90%	MF43	Performance Direct	01784 477477
MF CLASSIC Reasonable performance and good value for money from this big slab of a magneto-optical drive.					

Monitors

Not all monitors are the same. How sharp is your picture? Are the colours crisp and true to life? What resolutions are available? Is there any distortion? We've tested both 15-inch and 17-inch models.

Name	Price	Rating	Reviewed	Contact	Telephone
AppleVision 1710	£927	92%	MF40	Apple	0800 127753
MF CLASSIC A 17-inch monitor with easy controls, overscan (no black borders) and superb picture quality.					
Hitachi 17MVX Pro 2	£704	85%	MF40	Hitachi	0800 605 605
Good performance even at high resolutions, although setting up the screen could get fiddly and tedious.					
Hitachi 17MVX V2	£551	83%	MF44	Hitachi	0181 849 2000
Good picture quality and comprehensive controls but disappointing documentation. Impressive for the price.					
Iiyama Pro 17-inch	£735	89%	MF40	Iiyama	01438 745482
The DiamondTron screen provides excellent quality even at the staggering maximum resolution of 1,600 x 1,200.					

Name	Price	Rating	Reviewed	Contact	Telephone
Mitsubishi 15HX	£376	82%	MF40	Mitsubishi	01707 276 100
This screen uses Mitsubishi's DiamondTron system to get close to Trinitron quality and provide an excellent display.					
Mitsubishi 17HX	£758	83%	MF40	Mitsubishi	01707 276100
Good quality except at the highest resolution, and comes with an anti-moiré function. The manual could be more helpful.					
Samsung 17GLsi	£822	84%	MF40	Samsung	0800 521 652
A 17-inch unit with a maximum resolution of 1,280 x 1,024 and a Trinitron tube. Excellent quality at all resolutions.					
Sony 15sfII	£465	91%	MF40	Sony	0181 760 0500
MF CLASSIC Unusually for a 15-inch monitor, the Sony provides superb picture quality at all resolutions.					
Sony 17sfII	£763	92%	MF40	Sony	0181 760 0500
MF CLASSIC Picture quality is excellent at all resolutions, setting up is easy and the manual is excellent.					
Taxan Ergo Vision 730TCO	£735	84%	MF40	Taxan	01344 484646
This 17-inch monitor offers better picture quality than its 15-inch smaller brother. We reviewed the Ergo Vision 730LR.					

Graphics cards

Speed up your Mac's display with an accelerator card. Different models can be set up to add resloution and colours, improve 3D rendering or offer all-round improvements.

Name	Price	Rating	Reviewed	Contact	Telephone
ATI Xclaim GA	£293	79%	MF45	ATI	01235 833666
The Xclaim GA has a good mix of useful features and it's a solid performer, but it would benefit from a price cut.					
Formac ProLegend GA (NuBus)	£622	80%	MF45	Formac	0181 533 4040
This card has a good range of features, but it's not terribly fast. Also, it doesn't support thousands of colours.					
Formac ProVision 4/60	£499	87%	MF45	Formac	0181 533 4040
The ProVision 4/60 has a broad range of features, good documentation and is very fast indeed.					
IMS Twin Turbo 128M2	£352	83%	MF45	Principal	01793 441100
Although slow in real-world tests, we liked this card because of its ease of use and upgradability.					
Matrox MGA Millennium	£234	88%	MF45	Principal	01793 441100
Pretty speedy and great value for money – this card offers not only 128-bit graphics, but also has QuickDraw 3D.					

Digital input

How do you get analogue data from the real world into digital data on your Mac? Here is MACFORMAT's pick of scanners, digital cameras and related software.

Name	Price	Rating	Reviewed	Contact	Telephone
Apple QuickTake 150 camera	£525	72%	MF41	Apple	0800 127753
Indifferent picture quality and flash accuracy with this digital camera. You do get a useful image editing program.					
Connectix Colour QuickCam	£199	85%	MF45	Connectix	0171 622 3355
As an unpretentious, low-cost and fun entry to digital still and video images on the desktop, it's difficult to fault.					
Epson GT-5000 scanner	£469	81%	MF41	Epson	01442 61144
This scanner's a little fuzzy but has reasonable colour reproduction. A little lacking in features, with poor documentation.					
Kodak DC-20 camera	£353	91%	MF41	Kodak	0800 281487
MF CLASSIC Pretty low-resolution digital camera but extremely easy to use and fun too.					
Microtek Scanmaker E3	£328	86%	MF41	CU	0181 358 5857
At 600dpi, images were a bit fuzzy and lost subtlety, but overall performance is very acceptable for a scanner of this price.					
Umax Vista S6E scanner	£499	85%	MF41	IMC Distribution	01344 872 800
Very fast scanner but with a little fuzziness and difficulty with greens. Otherwise quality was good, given the price.					
Visioneer PaperPort scanner	£293	86%	MF28	CU	0181 358 5857
Tiny A4 mono scanner that can sit between your keyboard and Macintosh – sheets are rolled in and out.					

Printers

Are you shopping for a mono printer or colour? Portable or desktop? PostScript or non-PostScript? Inkjet or laser? We've reviewed dozens of printers for every need, and here is our pick of the best.

Name	Price	Rating	Reviewed	Contact	Telephone
ALPS MD-2010	£529	90%	MF45	Rotec Distribution	01604 402012
MF CLASSIC Slow and clackety though it might seem, the MD-2010 produces quite superb colour and definition.					
Apple LaserWriter 12/640 PS	£1,387	80%	MF47	Apple	0800 127753
A perfectly adequate laser printer – slightly over priced, but ideal if you feel safest wih an Apple badge on your hardware.					
Apple StyleWriter 1500	£275	90%	MF38	Apple	0800 127753
MF CLASSIC For the price, excellent colour performance even on plain paper.					
Apple StyleWriter 2500	£359	84%	MF38	Apple	0800 127753
A big improvement on its predecessor the 2400, but not quite in the same league as colour rivals from HP and Epson.					

Buying Advice continued

person – and this criterion applies also if you're buying from a private seller);
3. Fit for the purpose for which it was sold or which you specified.
If it fails to meet any or all of these criteria, you are entitled to return the product for a full refund, get compensation for all or part of the value, or get a replacement or free repair, depending on the seriousness of the defect. These are the "statutory rights" that adverts always say are "not affected" by any extra guarantees. A dealer can't deny these rights or add conditions (such as "provided goods are returned to us at your expense within seven days").

How to complain

If you're not happy about something, contact the supplier first and politely explain your concerns. Be patient; if there's some technical problem, it may genuinely take some time to find a solution. Most difficulties are sorted out at this stage without further fuss.

If yours isn't, put your complaint in writing, clearly stating your problem and what you'd like done. Give the firm a reasonable time to reply – say 14 days or so.

- If your complaint is not resolved, you may need to take some sort of legal action to enforce your rights. This need not cost you a lot of money. Seek advice from a solicitor (ask about the free advice scheme – you may not have to pay for the initial consultation). Or contact one of the following (check in your local phone directory):
- The Citizen's Advice Bureau,
- Trading Standards Office (listed under your local council),
- Office of Fair Trading, or
- County Court (ask about the Small Claims procedure).

Where to buy

- Mail-order companies are ideal if you know what you want and how to set it up, and therefore just want the best price.
- Retailers are a good bet if you need advice and technical assistance, and you want to examine products before you buy them.

There are a several types of retail outlet selling Macintosh products:

- Authorised Apple resellers may not always offer the best price, but you can expect a wide choice of hardware and software, and considerable expertise.
- Major retail chains can be another, sometimes more accessible, source. The Dixons group sells a limited number of models in the Mac range, while Comet and PC World stock hardware and software. Check with your local store before visiting, though – smaller stores may not stock a useful range.
- Entertainment chains like HMV now carry Mac software in some branches.
- Finally, independent retailers may stock Mac products. Check your local Yellow Pages for more information.

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Product News

Just your type?

Adobe has released 12 new typefaces, including fonts called **Kepler, Kepler Expert, Conga Brava, Cronos** and **Cronos Expert**. They are all **multiple master typefaces**, which means you can alter weight, width, style or optical size to produce **even more variations** and customise each typeface for your particular needs. Advantages include the ability to precisely adjust text to fit logos and shapes.

It has also introduced a **Hot Singles** line of **single-typeface fonts** with no weight variants. **Andreas** is reminiscent of Art Deco style, **Mojo** harks back to the typography of the '60s and the characters in **Ouch!** are either bandaged or shaped in the style of surgical implements (ouch indeed). The last, **Shuriken Boy**, uses the style popularised in Manga comics.

For more information call **Adobe Direct** on **0131 458 6842**, or visit the **Website** at **http://www.adobe.com/**

Casio digital cameras

Casio has extended its range of **digital cameras** with the new **QV-300.** It's similar to the **QV-100** but has a **dual focal-point lens** (a telephoto option) and a **2.5-inch LCD viewing screen**.

Pictures are captured by a **360,000-pixel CCD** to produce either Fine (640 x 480 pixels) or Normal (320 x 240) images. It can store up to 64 Fine or 192 Normal images.

You don't get anything like the definition of normal "chemical" cameras or professional digital cameras, but you do get the convenience of instant, editable electronic images for just **£704**.

Call **Casio** on **0181 450 9131** for more, or visit the company's **Website** at **http://www.casio.co.uk/**

Modem Message Centre

Following the announcement of its new time- and money-saving **x2** modem technology, **US Robotics** has launched the Mac-compatible version of its new **Sportster Voice modem**, which combines a **33.6Kbps fax modem** with a hands-free speakerphone and digital answering machine. It can distinguish between incoming fax and phone messages and supports **remote voice-message retrieval** and up to 1,000 mailboxes. (You need an additional headset to use the voice features.)

This model can also be upgraded to use US Robotics' **x2 technology** when it becomes available. In the meantime, you get a **five-year warranty** and free **lifetime technical support** (see the Buyer's Guide feature this issue!). The

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Name	Price	Rating	Reviewed	Contact	Telephone
Epson EPL-5500	£469	89%	MF39	Epson	01442 61144
Compact and light 600dpi PostScript printer with a useful 5Mb of RAM. You'll need to buy a lead for your Mac, though.					
Epson Stylus Pro	£513	90%	MF38	Epson	01442 61144
MF CLASSIC Built like a breeze block, but offers stunning smoothness. Almost as good as a dye-sub printer.					
FotoFUN! Printer	£493	87%	MF31	Bannerbridge	01268 419101
Affordable, good quality dye-sub colour output. Takes up little space but only prints out 6-inch x 4-inch snapshots.					
HP LaserJet 5MP	£1,198	95%	MF29	Hewlett Packard	0990 474747
MF CLASSIC 600dpi PostScript laser printer with excellent greyscale and remarkable output quality at the price.					
HP DeskJet 340	£235	85%	MF27	Hewlett Packard	0990 474747
Portable 300dpi inkjet with colour capability and excellent output quality. We reviewed the HP DeskWriter 320.					
HP 870cxi	£494	92%	MF38	Hewlett Packard	0990 474747
MF CLASSIC First-rate colour balance and very good performance on plain paper. We reviewed the HP 850C.					

Modems

If you want to connect to the Internet, to bulletin boards, on-line services or even friends and acquaintances via your Mac, you need a modem. The faster the modem, the cheaper it will be to run.

Name	Price	Rating	Reviewed	Contact	Telephone
Global Village Platinum	£234	92%	MF39	InfoBank	0181 991 0578
MF CLASSIC The Teleport Platinum is a slick, fast and stylish 28.8K modem with a good manual, fax and OCR software.					
Motorola 3400	£150	90%	MF39	Gasteiner	0181 345 6000
MF CLASSIC Uncomplicated and easy to set up 28.8K modem, but with rather basic fax software.					
SupraExpress 33.6	£175	89%	MF39	CU	0181 357 5758
Plain-looking 33.6K modem powered by your ADB keyboard port. We reviewed the SupraExpress.					
US Robotics Mac & Fax	£199	89%	MF39	US Robotics	0800 225252
The Mac & Fax Sportster is a fast and reliable 28.8K modem, but there's no straight-through port to plug a telephone into.					

Input devices

There are plenty of alternatives to your regular keyboard and mouse, including some for specialised use. Take a look at graphic tablets as well – these enable you to sketch into art packages.

Name	Price	Rating	Reviewed	Contact	Telephone
AlphaSmart Pro Keyboard	£234	86%	MF47	Chromasonic	0181 203 8989
Doubles brilliantly as a portable word processor, but as a keyboard it's let down by spongy key action.					
Apple Adjustable Keyboard	£166	81%	MF47	Apple	0800 127753
A space-age split keyboard which is remarkably comfortable, but bulky and overpriced.					
Apple Design II Mouse	£29	83%	MF47	Apple	0800 127753
Shapely mouse with positive click but a little bulky for smaller hands. It's standard with most PowerMacs and Performas.					
Calcomp DrawingSlate II A6	£116	86%	MF47	Calcomp	01734 320032
Superb value for money - just as well made as Wacom's tablets, with a brilliant range of highly usable features.					
Kensington Thinking Mouse	£54	86%	MF47	Mac Accessory	0191 296 1500
Top of the range. Has four buttons (five when front two are pressed together), all fully programmable.					
MacAlly Single-Button Mouse	£18	87%	MF47	Mac Accessory	0191 296 1500
Great value – the sensitive switch requires a super-light touch so lessens finger fatigue. Easy-maintenance design.					
Wacom ArtPad II	£158	90%	MF47	CU	0181 358 5857
MF CLASSIC A little expensive, but the quality is superb and the UltraPen Eraser is simply brilliant.					
Wacom UltraPad A4	£540	85%	MF47	CU	0181 358 5857
Very well made indeed, with the excellent UltraPen Eraser or puck. At the street price of nearer £350, a great buy.					

Office software

Many Macs are used in the office or study with worthwhile applications like word processors, databases and spreadsheets. There are many related productivity applications, too, like personal organisers.

Name	Price	Rating	Reviewed	Contact	Telephone
ClarisImpact 2	£152	86%	MF34	Claris	0181 756 0101
Combines spreadsheet functions with charting, outlining and DTP for the ultimate low-end business presentation suite.					
ClarisWorks 4.0	£152	92%	MF31	Claris	0181 756 0101
MF CLASSIC The Mac's standard all-in-one office suite. Inexpensive yet very powerful in the right hands.					
Excel 5	£220	87%	MF18	Microsoft	0345 002000
The only professional spreadsheet package on the Mac boasts 3D documents and more power than a Saturn 5.					
Expresso 1.0	£20	89%	MF31	Softline	0181 401 1234
Personal organiser that makes up for in charm and value what it lacks in high-powered relational data-handling.					

SIX OF THE BEST *from* TASHA

Performa 5320/120

• 16MB RAM • 1.2GB Fast hard drive • 4x- speed CD-ROM
• 120Mhz 603 RISC Processor • TV Tuner and remote control
• Internet ready 28.8 Fax / Data Modem
• Video in and MPEG video card included • Built-in Stereo Speakers

£1199

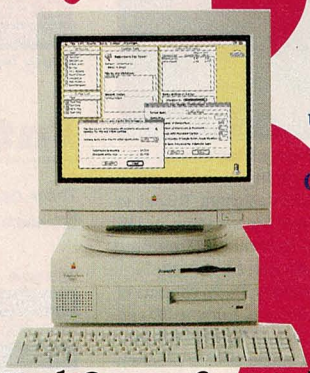
Claim state of the art QuickTake 150 Digital Camera worth (£399) *Free!* when you buy our blockbuster package (Apple Creative Studio Plus Colour Stylewriter 2500 Printer) before 29th of March 97.

Apple Creative Studio Performa 6400/200

• 24MB RAM • 2.4GB Fast hard drive • 8 x- speed CD-ROM
• 200 Mhz PowerPC 603e Risc • 256 level 2 cache
• Internet ready 28.8 Fax / Data Modem
• 15 in Multiple Scan Display • Keyboard • Mouse
• Printer not included in the price.

£2099

£800



Can be used as a desktop Computer

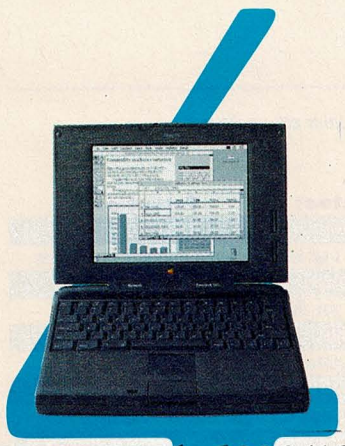
WorkGroup Server 7250/120

Apple WorkGroup Server under £800.

This is first time an Apple WorkGroup Server has ever been available for less than £900. Y et, it gives the performance and reliability features you would expect

• 16MB RAM • 1.2GB internal hard drive • CD- ROM drive
• 601 RISC with integrated math Co-Procesessor and 256K level 2 cache
• 3PCI slots • Built in Ethernet for faster data transfer over network
• 17 in Multiple Scan Display and Keyboard are not included in price

£799



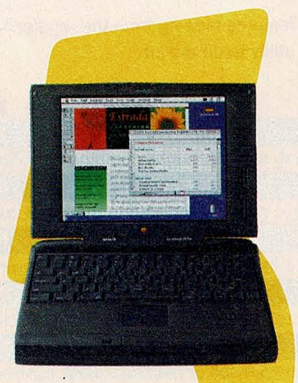
PowerBook 5300/100

PowerBook 5300 under £900.

• 8MB RAM • 500MB Fast hard drive • Floppy Disk Drive
• 603e RISC with integrated math Co-Procesessor and 16K data cache
• 9.5" backlit passive-matrix Display

New Low Price

£899



PowerBook 5300cs/100

• 8MB RAM • 500MB Fast hard drive • Floppy Disk Drive
• 603e RISC with integrated math Co-Procesessor and 16K data cache
• 10.4" backlit dual scan colour Display

New Low Price

£1199

Superb Value!

PowerBook Duo 2300c/100

• 20 MB RAM • 1.1GB Fast hard drive
• 603e RISC with integrated math Co-Procesessor and 16K data cache
• 9.5" backlit active-matrix colour Display
• Express Modem

New Low Price

£1499

These products are intended for business user and excludes VAT.
Goods subject to availability.

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London W14 8NZ
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or visit us on the internet at http://www.tasha.co.uk

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Product News continued

RRP is **£199**, and you can find out more by calling **0118 922 8200** or taking a look at the **US Robotics Website** at **http://www.usr.co.uk/**

Umax Graphics Bundle

Umax manufactures **Mac clones** for everyone from entry-level users right up to professional designers. Thanks to an agreement with Macromedia, its UK distributor, IMC, is to bundle ***FreeHand Graphics Studio*** with all of them.

FreeHand Graphics Studio consists of *Macromedia FreeHand, Extreme 3D* and *xRes* (we gave away a "special edition" of this excellent image-editing program on the bonus MF47 cover CD). You also get *Fontographer*, which enables you to create and edit fonts.

The bundle, which looks like excellent value, will also extend to selected **Umax scanners**. Call your favourite supplier for more information.

Affordable scanners

Still on the scanning front, Taiwanese peripheral maker **Primax** has added two new **scanners** to its **MediaStorm** range. The **MediaStorm Jewel** is a single-pass 30-bit A4 flatbed scanner with a price tag of around **£176**, while the **MediaStorm 9.600 Profi** offers a higher resolution of 600 x 1200 dpi and will sell for around **£294**.

In the meantime, look out for a new **Phodox** range of scanners, due to be announced shortly. For the latest news, call **Primax** on **01235 559922**.

Big-screen appeal

Mac owners hoping to buy a **bigger monitor** without having to remortgage the house may be interested in the new **17-inch Mitsubishi Diamond Pro 67TXV**. Mitsubishi's **Diamondtron** technology is claimed to offer vibrant colours and crisp resolution, even in the corners of the screen, and at an RRP of **£499** the **67TXV** is pretty affordable, too (it's £146 cheaper than the new Sony Multiscan 200sf overleaf, for example). You won't need to knock a hole in the wall to accomodate the tube, either, because the whole unit is only **42.5cm deep**.

You can find out more by calling **Mitsubishi** on **01707 278684**.

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Name	Price	Rating	Reviewed	Contact	Telephone
FileMaker Pro 3.0	£234	96%	MF37	Claris	0181 756 0101
MF CLASSIC An excellent database that's been tweaked and tuned, and is now fully relational.					
Let's KISS	£153	91%	MF41	Softline	0181 401 1234
MF CLASSIC So far ahead of traditional spreadsheet designs you wonder why no-one thought of it sooner.					
Organiser 2	£81	86%	MF46	Claris	0345 413060
Able to handle links between information both internally and to the Net – no networking, though.					
Up-to-Date & Contact 3.5	£116	89%	MF31	Now! Software	01525 237001
Dynamically-linked duo of contacts manager and diary. Occasionally a little too complex for its own good.					
Word 6.0.1	£220	92%	MF20	Microsoft	0345 002000
MF CLASSIC The world's favourite word processor has a monumental feature list but a bewildering array of controls.					
WordPerfect 3.51	£194	88%	MF48	Corel	0800 973189
A fully featured word processor that's every bit as powerful as any of its rivals, and friendly with it.					

Internet and comms

These days communications and the Internet are virtually synonymous, and the latest generation of Web browsers handle e-mail, ftp, Usenet and anything else you might want to do on the Net.

Name	Price	Rating	Reviewed	Contact	Telephone
Em@iler	£58	82%	MF42	Claris	0181 756 0101
Neat and attractive e-mail application that handles mailboxes, enclosures and address books painlessly.					
Eudora Pro 3	£75	83%	MF42	Electric Mail	01223 501333
Very powerful e-mail application with a new, friendlier interface that doesn't quite hide some murky technical depths.					
Internet Explorer 3	Free	78%	MF39	Microsoft	0345 002000
Microsoft's browser isn't as good as *Netscape*, but it is free. We reviewed *Internet Explorer 2.*					
Netscape Navigator 3	$49	94%	MF39	Netscape at http://home.netscape.com/	
MF CLASSIC The world's favourite Web browser does everything rather too well for comfort. We reviewed *Netscape 2.0.*					
Snap Mail 2 (5-user pack)	£206	90%	MF42	Softline	0181 401 1234
MF CLASSIC Simple and fun networked e-mail software that requires no administrators or complex set-up procedures.					

Utilities

Whether you want to add features missing from the regular Mac Finder or protect your set-up from System crashes, there's a utility to do the job.

Name	Price	Rating	Reviewed	Contact	Telephone
Conflict Catcher 3	£81	81%	MF29	Softline	0181 401 1234
Automated conflict-catching walk-throughs combine with Extension management that include fonts and start-up items.					
Norton Utilities 3.2	£116	88%	MF42	Symantec	01734 814 230
Superficial enhancements to a dated application that's not even PowerMac-native yet. Still market leader... for now.					
Conflict Personal Backup	£46	92%	MF29	Softline	0181 401 1234
MF CLASSIC Automated back-up scripts that can run near-invisibly in the background at pre-set times.					
PopupFolder 2.0	£46	87%	MF35	Softline	0181 401 1234
Hierarchical folder menus up to 16 levels deep both in the Finder and in **Find** and **Save** dialogue boxes. Paradise!					
RAM Charger 3.0	£18	93%	MF47	Syncronys	00 1 213 340 4100
MF CLASSIC Frees up megabytes of precious RAM, runs on any Mac, and is compatible with Virtual Memory.					
RAM Doubler 2	£71	92%	MF43	CU	0181 200 8282
MF CLASSIC If you have a modern Mac, *RAM Doubler* is so essential a utility you'll wonder how you coped without it.					

Graphics

From image editing to professional illustration to 3D design and raytracing, here's our pick of the top Macintosh graphics packages.

Name	Price	Rating	Reviewed	Contact	Telephone
Bryce 2	£234	93%	MF38	Principal	01706 832000
MF CLASSIC 3D landscape creation tool that's more versatile than its predecessor and can create indoor scenes too.					
CorelDraw 6	£465	91%	MF44	Corel	0800 973189
MF CLASSIC *CorelDraw* is great as long as you have a PowerMac and plenty of RAM and hard disk space.					
Dabbler 2	£59	90%	MF35	CU	0181 358 5857
MF CLASSIC Natural media painting program for those awed by multi-layered dialogues and complex options.					
Detailer	£328	85%	MF46	Principal	01756 704040
Detailer is powerful, fast and satisfies a genuine need for a form of direct 3D image mapping every artist can understand.					
FreeHand 7	£529	82%	MF47	CU	0181 358 5857
A significant improvement on the previous version, this illustration giant is well worth upgrading to.					

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Product News continued

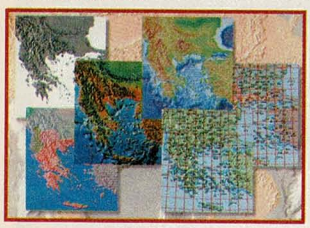
Sony Trinitron Trio

Sony has announced three new **monitors** to complete its line-up for 1997. The **15-inch Multiscan 100sf (£387), 17-inch Multiscan 200sf (£645)** and **20-inch Multiscan 300sf (£1,233)** boast technical and ergonomic improvements over their predecessors and are aimed at the **home/office** market. Call **Sony** on **0990 424424** for details, or visit the **Website** at **http://www.sony-cp.com/**

And there's more...

NEC, meanwhile, has been brushing up its own **monitor** range with the release of three new high-end models. The **MultiSync P750** is a **17-inch** model which replaces the XP17. It uses NEC's **CromaClear** tube technology and has a maximum resolution of 1,280 x 1,024 at 85Hz. The RRP is **£1,174**. The **P1150** and **E1100**, meanwhile, replace the XP21 and XE21 respectively, and are aimed at **professional designers, illustrators** and **CAD users**. The **E1100** has a maximum resolution of 1,280 x 1,024 at 75Hz and costs **£1,703**, while the **P1150** offers a maximum resolution of 1,600 x 1,200 at 85Hz and costs **£2,055**. You can find out more by calling **0181 993 8111**.

View from above



Mountain High Maps, a CD-based compendium of **country, region and world maps**, has been updated to version 2.5. Previously, the maps were supplied largely as greyscale TIFFs designed to be coloured by the user. Now, though, each of the 80 map suites has two **pre-coloured physical versions** and a **pre-coloured political version**. This means ***Mountain High Maps*** is now supplied on three CDs (each map is designed for **high-resolution imagesetter output** and takes up 50Mb). Typically, each pixel in a map image is equivalent to an area 100m-500m square.

Version 2.5 has **over 15,000 place names** and **1,000 labelled rivers, lakes and mountains**. And the maps are supplied with *Illustrator, FreeHand* and *Photoshop* **masks** to make it easy

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Name	Price	Rating	Reviewed	Contact	Telephone
Illustrator 6	£376	80%	MF37	Adobe	0181 606 4000
The latest version of this vector-based professional illustration package is nearly on a par with its great rival *FreeHand*.					
Infini-D 3.5	£469	85%	MF42	Gomark	0171 731 7930
3D modelling, rendering and animation package that's easy to use but produces rather crude and mechanical results.					
Kai's Power Goo	£58	90%	MF41	Principal	01706 832000
MF CLASSIC With many professional-level tools, *Goo* might be the best fun you'll have with a graphics package.					
Live Picture 2.5	£934	85%	MF38	IMC	01344 871 329
A kind of super-*Photoshop* with an unusual interface but excellent compositing. Not as RAM-hungry as *Photoshop*.					
Painter 4	£469	91%	MF35	CU	0181 358 5857
MF CLASSIC Blends traditional painting tools and media with mouse pointers and Bézier curves.					
PhotoDeluxe	£88	85%	MF39	Adobe	0181 606 4000
Innovative and powerful photo manipulation package at a bargain price – if you've got the hardware needed to run it.					
Photoshop 4.0	£635	92%	MF47	Adobe	0181 606 4000
MF CLASSIC The world's most popular image editor gets even better with a careful rethink of existing capabilities.					
StrataStudio Pro 1.75	£1,169	92%	MF34	Principal	01706 832000
MF CLASSIC Creates complex geometries, resulting in detailed and realistic stills and animations.					
3D World 2.0	£116	78%	MF45	Microspot	01622 687771
A powerful, great value, basic 3D package – a good toy and superb learning tool, but nothing more sophisticated.					
xRes 3	£645	91%	MF38	CU	0181 358 5857
MF CLASSIC Heavyweight graphics package aimed at a market beyond *Photoshop*. We reviewed xRes 2.					

Video and animation

Once restricted to profesional studios, video creativty is coming into its own on the Mac, especially as you can now broadcast through the World Wide Web and QuickTime.

Name	Price	Rating	Reviewed	Contact	Telephone
After Effects 3.0	£600	83%	MF45	Adobe	0131 451 6888
Great features make *After Effects* a very cost-effective way to give your movies a professional touch.					
Amazing Animation	£58	90%	MF26	Claris	0181 756 0101
MF CLASSIC Animation tool aimed at kids and which comes with a stock of characters to animate.					
Animation Works	£153	85%	MF26	Gold Disk	01734 814230
Aimed more at youngsters than professionals, but still needs drawing skills and an understanding of cel animation.					
Elastic Reality 1.21	£293	90%	MF26	Softline	0181 401 1234
MF CLASSIC Heavyweight morphing application that's more sophisticated than its cheaper rival *Morph*.					
Final Effects 3	£151	87%	MF45	Principal Distribution	01756 704000
The additional cost of *Final Effects* is well worthwhile, as this collection of plug-ins takes After Effects to new heights.					
Morph 2.5	£117	84%	MF26	Softline	0181 401 1234
Powerful and enjoyable morphing program at an affordable price. Easy to use, although lacking in professional features.					
Premiere 4.2	£586	90%	MF21	Adobe	0181 606 4000
MF CLASSIC The pro's choice, this video editing suite offers sophisticated features. We reviewed *Premiere 4.0*.					
PROmotion	£149	80%	MF26	Gomark	0171 731 7930
Animation program for serious or professional users, which requires skill and know-how. Can output to videotape.					

Music and audio

The Macintosh is one of the mainstays of the professional music industry, and boasts a wealth of high-quality software for MIDI, sequencing, scorewriting, sound editing, and direct-to-disk recording.

Name	Price	Rating	Reviewed	Contact	Telephone
Cubase VST	£329	94%	MF39	TSC	0171 258 3454
MF CLASSIC This sequencer is packed with features, easy to use and great value.					
Deck II v2.5	£410	84%	MF38	CU	0181 358 5857
Direct-to-disk recording program that also has many uses for multimedia authors and post-production studios.					
FreeStyle	£149	90%	MF22	Music Track	01462 733310
MF CLASSIC An excellent introduction to sequencing with some powerful and unique features.					
Logic 2.5	£649	92%	MF31	Sound Technology	01462 480 500
MF CLASSIC A high-powered sequencing package with some unique processing and arranging features.					
MusicTime	£100	90%	MF27	Arbiter	0181 202 1199
MF CLASSIC An excellent budget-priced scorewriter that can use QuickTime's Musical Instruments Extension.					
Overture	£234	90%	MF24	MCMXCIX	0171 723 7221
MF CLASSIC Application for converting your MIDI compositions into printed scores in musical notation.					
Session 2	£175	89%	MF33	Digidesign UK	0800 898 331
Affordable direct-to-disk recording program. You miss out on some features, but it's still up to professional use.					
Visual Arranger	£39	90%	MF26	Yamaha	01908 366700
MF CLASSIC MIDI application for those who want to create a lot of music for relatively few musical skills.					

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Jump Ahead Year 1	£23.45	Pinball Prelude	£19.95
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Adibou 6/7	£23.45	The Simpsons	£25.95
Sesame Street: Lets make a word	£23.95	The Ultimate Encycl of Soccer	£23.95
EA Kids Art Centre	£23.95	Professor Jim	£23.95
Scooters Magic Castle	£23.95	Worms	£23.95
Peter's Alphabet Adventure	£16.45	Cold Blooded	£26.45
Peter's Magic Adventure	£16.45	Ace Ventura	£26.45
Peter's Number Adventure	£16.45	Arcade America	£26.45
Casper Brain Book & Video	£23.45	Nascar Racing 96	£36.95
Educational		Power Poker	£27.45
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ADI English & Maths 11-12	£23.45	Police Quest Swat	£30.45
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Jump Ahead - Toddlers	£16.45	Rama	£34.45
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Children's Multimedia Dictionary	£30.95	Gabriel Knight 2	£39.45
Incredible Amazing Dictionary	£23.95	System Shock	£33.95
PB Bear's Birthday Party	£23.95	Phantasmagoria	£34.45
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Product News continued

to add colour according to national borders, coastlines and more. There are also a range of **3D relief effects** for enhanced realism.

Mountain High Maps 2.5 costs **£528**, but the maps are **royalty-free** thereafter. If that's too much, you can get smaller ***Continental Editions*** at **£152–£234**. There's also a version without the relief shadows, ***Mountain High Maps Frontiers,*** for **£81**.

To find out about the full range of ***Mountain High*** products, call **01223 566250** or visit the **Digital Wisdom Website** at **http://www.digiwis.com/**

Database with added dimension

ACI's *4th Dimension (4D)* is a powerful cross-platform client-server **relational database** that's now available in a brand new version. **Version 6** (the previous version was 3.5) contains over **200 new commands** to help developers create custom-designed applications. It's also built to integrate thoroughly with the **Internet**, enabling remote access and the potential for sorting, data retrieval, record editing and creation via Internet or **Intranet** (internal network) connections.

The **4D v6** standalone version will cost **£464**, but users who've recently bought version 3.5 will get a **free upgrade**. The cost of the server version will be announced shortly. You can find out more by calling **ACI** on **01625 536178** or by visiting the **Website** at **http://www.aciuk.com/**

Disability tools

If you have **difficulties** using the **standard Mac keyboard**, either through physical problems or because of impaired vision, you may well find the **IntelliKeys overlay keyboard** is the answer to your problems.

The keyboard plugs straight into the ADB socket of your Macintosh. You can then use one of eight different keyboard overlays to provide **sticky keys** and duplicate **mouse movement** with the **cursor keys**. Thanks to a **barcode** on each overlay, the keyboard automatically recognises which one it's dealing with and needs no adjustment. Any custom settings are remembered even when your Mac is turned off.

The RRP is **£294** and you can find out more by calling **Inclusive Technology** on **0161 835 3677**.

Who needs a keyboard?

Of course, you may not need a keyboard at all – not if you get ***Clicker Plus*** from **Crick Software**. Previously only available in PC and Archimedes versions, ***Clicker Plus*** is now out on

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Publishing and electronic media

Publishing today is about far more than print: you can also produce material as multimedia for CD-ROM or the Web, or use an HTML editor to create Web pages from scratch.

Name	Price	Rating	Reviewed	Contact	Telephone
Astound	£222	91%	MF36	Gold Disk	01734 814230
MF CLASSIC A top presentation tool which makes handling quite complex actions easy.					
Authorware Academic	£150	95%	MF43	Prentice Hall	01442 257115
MF CLASSIC Icon-based multimedia creation at its finest, this power-packed program is for education only.					
BBEdit 4	£112	85%	MF47	Full Moon Software	01628 660242
This Web authoring tool is definitely not for beginners, but it's very powerful in an expert's hands.					
BeyondPress 2.0	£570	85%	MF40	XChange	0171 637 2966
Easy to use *XPress* XTension for converting *XPress* pages into HTML. No support for font tags or frames, though.					
Digital Chisel HTML 2.1	$159	89%	MF36	Pierian Spring	00 1 800 472 8578
Powerful entry-level educational package with a simple interface. We reviewed *Digital Chisel 2.0.*					
Director 5.0	£1,174	85%	MF41	CU	0181 358 5857
A sound upgrade to the industry leader for media authoring, which irons out many shortcomings. It's easier to use, too.					
Director Academic	£46	95%	MF43	Prentice Hall	01442 257115
MF CLASSIC De-facto standard for multimedia creation in a cut-down version – for education only.					
Home Page 1.0	£81	91%	MF47	Claris	0181 756 0101
MF CLASSIC Claris's Web page maker is good for beginners but still offers you room to grow.					
HyperCard 2.3	£95	79%	MF36	Apple	0800 127753
Authoring bundle built uneasily around the ageing *HyperCard.* With it, nothing is impossible, but few things are easy.					
HyperStudio 3.0	£121	88%	MF36	TAG Developments	01474 357350
Practical and powerful tool aimed more at education than multimedia authors per se. More text styling tools are needed.					
PageMaker 6	£605	91%	MF32	Adobe	0181 606 4000
MF CLASSIC It can do everything *QuarkXPress* can do at about half the price. Layout and design is clean and simple.					
PageMill 2.0	£116	90%	MF47	Adobe	0181 606 4000
MF CLASSIC A powerful, easy-to-use program with excellent support for advanced features like frames.					
QuarkImmedia	£1,169	91%	MF48	XChange	0171 637 2966
MF CLASSIC This XTension for *QuarkXPress* adds easy-to-use multimedia and Internet production features.					
QuarkXPress 3.32	£1,169	88%	MF48	CU	0181 358 5857
The market-leading DTP package costs plenty, but it's robust, powerful and flexible, right up to that final deadline.					
UniQorn 1.01	£1,052	80%	MF40	Principal	01706 832000
QuickDraw GX DTP application that does things *XPress* and *PageMaker* can only dream of. Needs hardware power,					

Multimedia CD-ROMs

The invention of the CD-ROM has created a whole multimedia publishing industry turning out educational, reference and leisure titles by the score.

Name	Price	Rating	Reviewed	Contact	Telephone
ABC of Animals	£40	90%	MF47	Creative Wonders	01753 549442
MF CLASSIC Covering a wide range of animals across the globe, this CD is educational and a well-designed treat.					
Ancient Lands	£30	85%	MF38	Microsoft	0345 002000
Entertains as well as educates. Although it's not a real research tool, it will readily inspire you to dig further.					
Cinemania 97	£30	92%	MF47	Microsoft	0345 002000
MF CLASSIC If you have a CD-ROM drive, £30 and even the slightest if interests in cinema, this is an essential buy.					
Encarta 96	£50	83%	MF42	Microsoft	01345 002000
Microsoft's definitive multimedia encyclopedia is bang up-to-date, but the Mac implementation is flawed.					
History of the World	£40	89%	MF38	Dorling Kindersley	0171 753 3488
More flashy and inspirational than in-depth and authoritative. Oozes quality, but built for browsing rather than research.					
Makers of the 20th Century	£45	89%	MF41	News Multimedia	01525 852 813
200 personalities of the 20th Century are examined and explained in a well-presented and often intriguing CD.					
Music Central 97	£30	85%	MF47	Microsoft	0345 002000
A well-researched and thorough delve into the world of popular music, even if some of the entries do seem quite obscure.					
The Mystery of Magritte	£40	90%	MF46	MIP	0171 881 8000
MF CLASSIC A radical look at one of the world's greatest artists. It'll make you question your very existence.					
Picasso	£40	88%	MF46	Grolier Interactive	01865 264000
An educational and entertaining trawl through the life and works of one of the world's greatest artists.					
RedShift 2	£50	92%	MF32	Maris Multimedia	0171 488 1566
MF CLASSIC Restrained but magnificent exploration of the universe using sound astronomic principles.					
The Way Things Work 2.0	£40	88%	MF45	Dorling Kindersley	0171 753 3488
Full of clear explanations and plenty of fun. Kids will find this easy to use, and can learn at their own pace.					
World Reference Atlas	£50	90%	MF37	Dorling Kindersley	0171 753 3488
MF CLASSIC Bestrides the Earth like a colossus, giving you the information you need, when you need it.					

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Mac LCII	4/40 cpu	£180
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"Many people regard the Mac IIci as the peak of evolution of the 68030 Mac II range... Today still a desirable second-hand bargain." – MacFormat January 1997		
Quadra 610	8/500 cpu	£450
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Product News continued

the Mac. It's an **on-screen keyboard** designed to be used alongside a **word processor**. It's not just a direct replacement for the keyboard, though, because it can be **configured** with **whole words** and **phrases** so kids can just drag and drop onto the page.

The program comes with a number of **preconfigured grids**, but teachers can easily edit them or even create their own. ***Clicker Plus*** has already proved its worth on other formats as a **learning aid** in primary schools and among those with **special needs**.

The Mac version costs a mere **£65** for a **five-user licence**. You can get more information by calling **Crick Software** on **01604 671691** or by visiting the **Website** at **http://www.cricksoft.com/**

4x-speed CD writer

Yamaha claims it has produced the **world's fastest read/write CD recorder**. The **CDR400** reads at **six times** and writes at **four times** normal speed, which is very good news for those people who've previously had to sit up until the wee small hours **mastering CDs**.

The new CD writer includes a 2Mb buffer and flash ROM, which means it will be possible to download **firmware upgrades** as and when they become available. Available initially as an internal drive only, the **CDR400** will cost **£529**. You can find out more by calling **Yamaha Media Technology** on **01908 366700**.

User Groups

User groups are more or less informal clubs of people with a common interest – in this case, the Mac. If you don't have any Mac-owning friends, they are a great source of information, advice and help. Some groups simply meet every now and again; others are more structured and may even publish regular newsletters.

UK User Group Council list

The UK User Group Council maintains a list of the Mac user groups which have registered with it. If you wish to contact the council, call John McKnight on 0181 314 1753.

Local groups

- **Aston University Mac UG**: Birmingham area. Contact Ray Tier on 0121 359 3611
- **Berkshire Mac UG**: contact Ian Burn on 01734 813
- **Blackburn Mac UG**: contact Roger Moreton on 01254 670043
- **Cambridge Apple UG**: contact Ian Archibald on 01223 311157
- **Cancer Research/RMH UG**: contact Raymond Henry on 0181 643 8901
- **Cumbria Mac user group**: Monthly meetings, newsletter, training (at reasonable rates). Call Linda Linsell,

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Multimedia for kids

How do you keep the kids entertained on a wet Sunday afternoon in November? Multimedia CD-ROMs for kids can entertain, occupy and educate all at the same time.

Name	Price	Rating	Reviewed	Contact	Telephone
Adiboo	£28	95%	MF46	Sierra	0118 920 9111
MF CLASSIC A fantastic learning adventure, packed full of activities and fun, keeping your kids fascinated for hours.					
Adventures of Peter Rabbit	£30	88%	MF43	Mindscape	01444 246333
A rare and challenging adventure game which will educate and captivate your kids.					
Counterfeit Collaborator	£28	90%	MF35	Sierra	0118 920 9100
MF CLASSIC A genuinely intriguing mystery forms the heart of this Playtoon CD.					
Darby the Dragon	£20	89%	MF44	Brøderbund	01429 273029
A rare and challenging adventure game which will educate and captivate your kids.					
The Greatest Toyshop on Earth	£30	88%	MF32	Omnimedia	0181 974 6766
A brilliantly entertaining set of kids' toys in a comfortingly British environment. Something to keep coming back to.					
KidWorks Deluxe	£35	88%	MF43	ABLAC	01626 332233
An excellent package which encourages children to get involved in all aspects of story-making.					
Logical Journey of the Zoombinis	£30	96%	MF41	Brøderbund	01429 273029
MF CLASSIC A well-designed course in mathematical logic for kids that's disguised as a superb-looking and fun game.					
The Lost Mind of Dr Brain	£28	92%	MF43	Sierra	01734 303322
MF CLASSIC Challenging, lots of fun and well suited to the intended age group, *Dr Brain* is addictive and has longevity.					
Maths Workshop	£30	90%	MF41	Brøderbund	01429 273029
MF CLASSIC Teaches maths in the broadest possible sense, with wonderful-looking activities and a good manual.					
My First Amazing World Explorer	£30	89%	MF41	Dorling Kindersley	0171 753 3488
Interactive atlas that's pitched at just the right level for younger children, showing the world as a diverse and living thing.					
Uncle Archibald	£28	90%	MF35	Sierra	0118 920 9100
MF CLASSIC Another excellent Playtoon about imaginary monsters that come to life. Slapstick chaos is the result.					
Word Stuff	£20	85%	MF39	Eidos Interactive	0121 606 1800
Teaches English and explains various everyday situations. An excellent blend of entertainment and real educational value.					

Games

As a games machine, the Macintosh rivals both the PC and the plethora of whizz-bang games consoles flooding the market. The best games tend to be those that involve brains as well as reflexes.

Name	Price	Rating	Reviewed	Contact	Telephone
Actua Soccer	£40	90%	MF46	Gremlin	0114 275 3423
MF CLASSIC A beautiful game about the beautiful game, and a superb debut performance for football on the Mac.					
Apache Longbow	£45	92%	MF41	Digital Integration	01276 684959
MF CLASSIC 3D Gouraud-shaded flight sim with real class and some fairly hefty hardware requirements.					
Caesar II	£35	85%	MF48	Sierra	0118 920 9100
An excellent, finely balanced *SimCity*-style title – absorbing and beautiful.					
Close Combat	£45	89%	MF48	Microsoft	0345 002000
A realistic war game with elements that will appeal to both tacticians and action junkies alike.					
Colonization	£45	93%	MF32	MicroProse	01454 893900
MF CLASSIC The follow-up to *Civilization* is an utterly absorbing simulator with long-term appeal.					
Day of the Tentacle	£40	94%	MF33	Virgin Int. Ent.	0171 368 2266
MF CLASSIC You'll love it. You'll hate it. It's funny, it's involving and the cartoons are quite superb.					
Doom 2: Hell on Earth	£45	90%	MF31	Virgin Int. Ent.	0171 368 2266
MF CLASSIC The blood-spattered violence *Doom* is famous for hides some quite involving puzzle-solving.					
F/A-18 Hornet 2	£69	93%	MF36	Softline	0181 401 1234
MF CLASSIC Realistic, absorbing and fun – an instant classic with imaginative and interesting missions.					
Gabriel Knight: The Beast Within	£45	84%	MF42	Sierra	0118 920 9100
Interactive movie/adventure game that for once successfully blends video footage with excellent gameplay.					
IndyCar Racing II	£17	94%	MF42	Sierra	0118 920 9100
MF CLASSIC Spectacular simulation at its finest, and at a real bargain price. Stunning graphics and attention to detail.					
Marathon 2	£65	95%	MF35	Softline	0181 401 1234
MF CLASSIC A huge game task, addictive gameplay and excellent graphics and sound. What more could you ask for?					
MechWarrior 2	£50	89%	MF43	Activision	0181 742 9400
The controls take some getting used to, but *MechWarrior 2* is too addictive to let that worry you for long.					
Pro Pinball: The Web	£35	90%	MF44	Empire	0181 343 7337
MF CLASSIC The finest pinball simulator ever (full stop).					
WarCraft II	£45	93%	MF45	Zablac Entertainment	01626 332233
MF CLASSIC A delight to look at and, in multi-player mode, as near to perfect as a game of this type has come.					
Worms	£30	89%	MF45	Team 17	01924 271637
Simple concept with almost endless tactical possibilities. Great multi-player game but let down by a clumsy interface.					

How to contact MACFORMAT

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Sending us a letter?
Send your letters to the address above – the shorter they are, the better their chances of being printed. E-mail letters are welcome too – please put "Apple Talk" in the subject line. If you'd like a letter included in the Readers' Corner on our Cover CD-ROM, make sure it contains no defamation or obscenity, then send it in as a *SimpleText* document (so anyone can read it!) on a disk marked "MACFORMAT Readers' Corner". Make sure you include your name and address, and note that we can't return your disk.

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Problems or questions?
■ Sorry, but we cannot give personal help with technical problems or buying advice, whether by phone, fax or e-mail. If you have an urgent problem with a new Mac, try the Apple Assistance Centre on 01753 615999.

■ We try to make ourselves available to answer Cover Disc related and general reader calls on Wednesday afternoons from 2pm to 6pm, so please ring then if you have to. We cannot answer technical queries over the phone – sorry! We hope you'll understand that because we receive so much correspondence we can't promise to reply to faxes, e-mail or mail personally, even if you include an SAE. However, rest assured that we do read all correspondence we receive.

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Winners

Announcing the lucky winners of recent competitions...

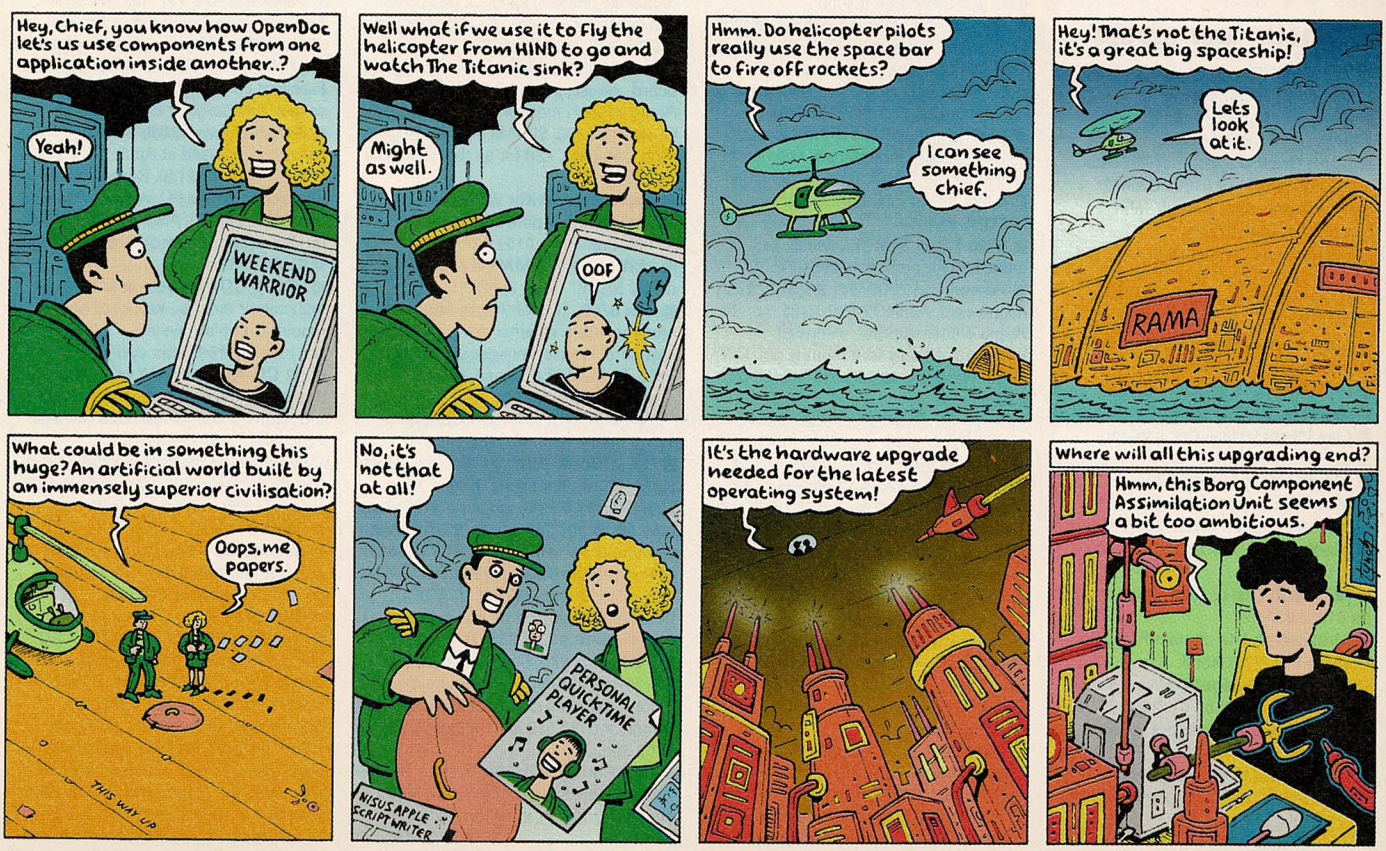
Back in MACFORMAT 43, we gave you the chance to win one of two Epson Stylus Color 500 inkjet printers, each worth over £340. The Stylus 500 can print text and images in superb photo-realistic colour at an impressive 720 x 720 dots per inch, and uses exclusive MicroWeave inkjet technology to prevent colour "banding".

The two lucky winners are Mrs Chris Carrick of Bishop Auckland, County Durham, and Derek Jolley of Dartford, Kent.

Also in MACFORMAT 43, we had a great bundle of Claris programs up for grabs. The first name out of the cardboard box was R Stone of Loughborough, who wins a copy of *Claris Home Page*, *Claris Em@iler* and *FileMaker Pro 3* – a mouth-watering package worth nearly £400 in all. The three runners-up who each win a copy of the Web page creator *Claris Home Page* are P Van Gelder of Amsterdam in the Netherlands, Mrs G Clark of Faringdon in Oxfordshire, and T Reddick of Kirkcaldy, Fife. Congratulations to all! **MF**

The Classic System Crew

by Bob Lynch


Hey, Chief, you know how OpenDoc let's us use components from one application inside another..?
Yeah!
WEEKEND WARRIOR
Well what if we use it to fly the helicopter from HIND to go and watch The Titanic sink?
Might as well.
OOF
Hmm. Do helicopter pilots really use the space bar to fire off rockets?
I can see something chief.
Hey! That's not the Titanic, it's a great big spaceship!
Lets look at it.
RAMA
What could be in something this huge? An artificial world built by an immensely superior civilisation?
Oops, me papers.
THIS WAY UP
No, it's not that at all!
PERSONAL QUICKTIME PLAYER
NISUS APPLE SCRIPT WRITER
It's the hardware upgrade needed for the latest operating system!
Where will all this upgrading end?
Hmm, this Borg Component Assimilation Unit seems a bit too ambitious.

User Groups continued

01229 828422 or send SAE c/o 10 Athol Street, Barrow-in-Furness, Cumbria LA14 2QT.

- **Gateway UG**: Norfolk area. Contact Verne Anderson on 01638 513000
- **Glasgow Mac UG**: contact Stephen Broadfoot on 0141 339 6646
- **London Mac UG**: contact John McKnight on 0181 314 1753
- **Mac Assist**: Cardiff and district. Contact Nigel Arrighi on 01222 224682
- **Midapple**: West Midlands. Contact William Watson on 01384 277921
- **Midland Mac UG**: Worcestershire. Contact Ivan Knezovich on 01299 402631
- **North West Apple CC**: contact George Evans on 01270 583714
- **Norwich Mac UG**: Dave Gudgeon on 01508 492938
- **Nottingham Mac UG**: contact David Nicholson-Cole on 0115 945 5077 or 0115 945 5444
- **Poole Mac UG**: contact Bob Lister on 01202 684441
- **S E Essex Mac UG**: contact Michael Foy on 01702 468062
- **Southampton Mac UG**: contact Clive Marklow on 01703 293453
- **Southern Mac UG**: Salisbury area. contact Roger Ford on 01722 780102
- **Southwest Mac UG**: contact John Elver on 01272 693119
- **Staffordshire Poly Mac UG**: contact Mark Stiles on 01785 52331
- **Sussex UG**: Hastings & E Sussex. Contact Garry Nevin on 01424 714110
- **West Midlands UG**: contact Danny Torbica on 01902 336172
- **Yorks & Humberside Mac UG**: contact David Vardy on 01423 358853

Thematic user groups

- **BAPC (Printers)**: contact Derek House on 01228 513621
- **Christian Mac UG**: contact Paul Wareing on 01789 490153
- **Corel Draw UG**: contact Jill Foster on 01509 415101 or 01509 620442
- **Developers UG**: contact John French on 01895 672654
- **HebreWare**: contact Mendy Scharf on 0181 802 6143
- **Helix UG**: contact John Sandell on 01763 273379
- **Independent School UG**: contact Ian Carter on 01252 512151
- **LAW Mac UG**: contact Charles Christian on 01379 88518
- **Lisa Users Group UK**: contact Sheila Bell on 01367 710453
- **MacBaud**: call 01685 58027
- **MacLaw**: contact Nicholas McFarlane-Watt on 01865 784777
- **Medical UG**: contact Keith Davey on 01836 348284
- **Microsoft UG**: contact 'Enquiries' on 01252 834995
- **Multimedia UG**: contact Richard Hurley on 01273 834588
- **Newton MessagePad West Yorks User Group**: David on 0113 278 0691
- **PageMaker UG**: contact David Foster on 01509 415101
- **QUAD Club (*QuarkXPress*)**: contact Philip Caplan on 0181 523 4233

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- **4Mb 72-pin SIMM** – £15, Cambridge ☎ 01223 51430 (eves)
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- **Classic 8/40**, carrying case, HP DeskWriter, £350 ono ☎ 01590 683484
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- **HP550C colour printer** with ink refills, LocalTalk cable and disks, £150 ono. Call Simon ☎ 01703 234559 (eves) or 01703 228656 (day)
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- **Mac LC 6/40.** 12-inch colour monitor, keyboard, mouse, System 7 and HP DeskWriter 500C printer – £300. Bedford ☎ 01234 750318.
- **LC475 12/250,** 14-inch monitor, System 7.5. Lots of software. Hardly used, original boxes. Leicester ☎ 0116 251 7158 £750 ono.
- **Quadra 650 24/230/CD,** 1Mb VRAM, CPU + mouse with manuals and System 7.5 CD. Mint condition, £360 ono. David ☎ 01604 586387.
- **Zip drive,** new, unopened, £90. 8Mb SIMM for Performa 6200, 630 etc, £20. 540Mb SCSI internal, £110. Fred ☎ 01633 266647 (evenings)
- **Radius 24-bit graphics PDS card** for SE/30, supports 13"/14" monitors. £150. Sean ☎ 01603 632112 or 01488 68345. E-mail S.Furey@uea.ac.uk.
- **Performa 6200CD 16/800,** fax/modem, 15-inch multiscan monitor, *MS Office,* £950; LC 10/40, keyboard, mouse, 12-inch monitor, £350; 650Mb external hard drive, £150; LaserWriter LS £250. Charlie ☎ 0141 639 5231.
- **Mac Quadra 840AV 48/1Gb** with keyboard, must sell, £850. Apple 15-inch multiscan monitor, £200, CLCIO colour copier printer scanner, £1,100. Contact Matthew ☎ 0181 744 0433.
- **IIcx 8/240,** 24-bit video card, keyboard, mouse, £375. LC 10/80, £350. Apple 14-inch monitor, 1 yr old, £185. 2x CD-ROM, £100, SIMMs, 72-pin, two 4Mb, one 8Mb, £80 for all three. ☎ 0113 243 6192.
- **Apple StyleWriter 2200**, brand new, cables, manual, spare cartridges, boxed – £200 Graham ☎ 0151 427 1412.
- **2Mb 30-pin SIMMs** – £10 each. 01582 570167 (after 6pm)
- **IIcx 8/40**, 14-inch Apple Trinitron monitor, 40Mb external drive, extended keyboard, mouse, very good condition – £350. StyleWriter II, boxed as new – £80. Simon ☎ 01865 557213
- **A pair of 8Mb 72-pin SIMMs**, 16Mb total – £60. ☎ 01286 881870
- **PowerBook 165C**, multimedia, 12Mb RAM, 120Mb hard disk, System 7.5.1 – £265. Printer, HP310, colour – £100. As new Apple 300 CD-ROM, £55. All good working order. Adrian ☎ 0181 743 5815.
- **PowerMac 6200 16/800CD,** CPU only. Also, Quadra 660AV 20/500CD. Upgrading. Some cards and accessories. May swap. ☎ 01277 355571 for details.
- **Performa 475,** StyleWriter printer, *ClarisWorks*, 14-inch monitor, keyboard, mouse, manuals, disks etc. One lady owner! ☎ 0191 519 4331 after 6pm £350 ono.
- **Performa 475 8/160**, System 7.5.3, 14-inch Apple Trinitron monitor, Motorola 28.8K modem, speakers, extras, home use only. Boxed, as new, £650. Watford, Giles ☎ 01923 234303.
- **Performa 450** with HP310 printer, *ClarisWorks,* complete system £450 ono. ☎ 01299 251335 (day) 01299 266670 (eves).
- **Radius 20-inch colour monitor** with 24-bit NuBus card, good working order. Offers. Radius 24XP accelerated NuBus graphics card. Offers. Also, GeoPort Adapter wanted. Jason ☎ 01792 468503
- **Psion 3 link kit** to Macintosh – cost £80, first £50 secures. Wanted PowerBook Duo items. WHY. Richard ☎ 01480 300409. St Ives,
- **Mac Performa 630 Plus**; TV/V; CD; floppy; CPU only + keyboard, mouse, big bundle of software. Complete with manuals. Wrapped and boxed, hardly used. Excellent value – £650. Cambridge. Kwiz ☎ 0171 482 0613
- **HP560c printer**, home use only, excellent condition, updated drivers, cables and refill kit – £150. Ray ☎ 0181 732 4619
- **Apple CD-ROM drive 300e plus**, plus *CD-ROM ToolKit* – £50. Michael ☎ 0171 9381801
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- **Performa 475 12/160**, full 68040, Apple 14-inch Trinitron monitor, CD 300+e CD-ROM, mouse and keyboard, *ClarisWorks* and *RAM Doubler* supplied. Excellent condition – £500. Buyer must collect. Edinburgh ☎ 0131 334 5595
- **Bargain! Two 32Mb SIMMS (80ns)** purchased at Apple '96 – £85 each or both for £150. Reason for sale: upgrade to Power PC. Would swap for one 64Mb DIMM. Also *TextBridge Pro* required (unregistered). Gravesend, Andi ☎ 01474 333315
- **LC630 CDTV video-in** 8/350, 14-inch colour monitor, keyboard and mouse. Complete system – £699. Dover ☎ 01304 823159 (after 6pm)
- **d2 CD-ROM drive** 2.4x – £100 ono. Apple 14-inch colour monitor – £200 ono. Steve ☎ 01342 843135 or e-mail: 72046.417@compuserve.com
- **6200 CD, StyleWriter 1200**, boxed, bought February '96, extended warranty – cost £1,750, will accept £900 ono. ☎ 01745 814046
- **Keyboards –** one French (AZERTY) and one German (QWERZ). Good condition, no cable. £40 ono. ☎ 0181 518 7311
- **Quadra 660AV 12/540** CD, CPU only. System 7.5.5, good condition, selling due to upgrade – £300 ono. Bristol, Tony ☎ 0117 907 9362 (after 6.30pm)
- **LC475 8/160**, monitor (14-inch colour display), Personal LaserWriter 300, CD-ROM 300, extended keyboard, *ClarisWorks 2, Norton Utilities 3.1, PGA Tour Golf 2, Lemmings, Doom 2*, Cover CD-ROMs (lots) – £800 ono. Prestwick

☎ 01292 475916

■ **Quadra 840AV/28/1.2/300** CD+, System 7.5.5. accelerated 48MHz, CPU only and mouse. Home use only – £1000. 16 x 1Mb 30 pin SIMM 70ns – £10 each, 2 x 8Mb 72 pin SIMM 70ns – £25 each. 2 x 4Mb 72 pin SIMM 60ns – £20 each. 16 x 4Mb 72 pin SIMM 70ns – £15 each. ☎ 01444 245392

Software for sale

■ ***Suitcase 2.1.4*** £20, *Colour Station Pro* £25, BitStream font packs 1/2 £20, *BitFolio* world maps £10, *StuffIt Deluxe 3.5* £25, *KeyCad 1.5* £20. Mike ☎ 01347 810685 (York)

■ ***SoftWindows*** £130, plus tons of software including *Excel* £40, *Theme Park* £15, *SimCity* £15, *PowerPoint* £15, *Adobe Streamline* £15 and much more. ☎ 01234 781403

■ ***Zork Nemesis*** £25; *Leisure Suit Larry 6* £15; *PowerMonger* £15; *Alone in the Dark 2* £20; *Populus* £15; *Syndicate* £15; *PGA Golf* £15. ☎ 0171 267 6869

■ ***Conflict Catcher 3*** £35 or swap for *Speed Doubler 2*. ☎ 0161 477 7097

■ ***Return to Zork*** £10, *Warlords 2* £10, *Warlords 1* £8, *Leisure Suit Larry 5* £8, *Sim Earth* £6. Will consider swaps. Simon ☎ 01703 234550 (eves)

■ ***HyperCard 2.2***, *Flying Nightmares, Iron Helix, Myst* & *SimCity 2000*. All original boxes and manuals £45 the lot; will swap for *Textbridge Pro* (PPC) or *Omni-Page Pro 6* or *7*. David ☎ 01604 586387

■ ***Microsoft Office 4.2.1.*** New. Also *TextBridge* (unregistered) and *Doom 2*. Will consider swaps. ☎ 01277 355571

■ ***FoxPro 2.5,*** boxed, manuals £40 ono. Books: *Inside Macintosh*, vols 1 and 6. Also *ResEdit Reference 2.1*. Offers or will swap. John ☎ 01633 864672

■ ***Carmen Sandiego Junior Detective,*** new, unused, unwanted prize. £20. ☎ 01705 663074

■ ***SoftWindows*** *95* CD – £170 inc. p & p. ☎ 0121 478 1288 or e-mail: jx91@cityscape.co.uk

■ ***SimEarth*** and manual – £5. *Apple Magic Collection* – £20. ☎ 0850 675503

■ ***Claris*** small business package including *Impact, Organiser* and literature, unopened – £100. Also Microtek scanner, software, unused (*ColorIt, ScanWizard, Omnipage*) – £30. ☎ 0850 675503 (mobile)

■ ***Phantasmagoria*** with guide book – £30. *Grolier Encyclopedia* – £10, *Rock Rap'n' Roll* – £10, *In Bed with Rednex* – £10, *Asterix Language Learner* – £10, lots more. Chris ☎ 01420 476764

■ ***Soft PC v3.0***, compatible with all 68K Macs. Boxed, as new. Steve ☎ 01342 843135 or e-mail: 72046.417@compuserve.com

■ ***Harpoon II***, *Links Pro, SimTower* – £28 each. *International Tennis, Civilisation, PGA II, RailRoad Tycoon* – £13 each. *IndyCar II* – £25. £110 the bundle. Offers accepted. Rob ☎ 01932 228431 (eves)

■ ***FoxPro 2.5***, boxed, will sell £45 or swap for programs or games or anything interesting on disk. Also cheap CD-ROM wanted. John ☎ 01633 8646672

■ **Audio training for *Word* 5.1** Levels I-III – £20. *Number Maze* – £10. *Photoshop Lite* 2.5, unregistered – £45. *Ray Dream Designer 3.0, AddDepth* – £45. *StuffIt Deluxe* – £15. *RAM Doubler 1.0* – £15. *PowerPoint 3.0* – £20. *KidPix Companion / Kids Cuts* – £20. *Eight Ball Deluxe Loony Labyrinth Tristan* – £20. *Aldus Freehand* 4.0 (unregistered). Ray ☎ 0181 732 4619

■ ***Discworld*** – £15. *Zork Anthology, Flashback, Daedalus Encounter* – £10 each. *Grolier Encylopedia, ConcertWare, Making Music, Rock, Rap 'n' Roll, Rednex* – £5 each. Boxed, manuals. ☎ 01548 853356

Wanted

■ ***SAM 4.0*** **or** ***Virex 5.6*** for under £20. Also wanted *RAM Doubler 2* and *Speed Doubler*. Will swap for *Marathon 1* CD. Will pay £20 for a programming language. ☎ 01592 721681

■ **PowerBook** 145, 145B, 160, 165, 180, 210, 230, 250, 520, 540, 280, 270c, 520c, 540c, 280c, any 190. Cash waiting. Road warrior collects. ☎ 01865 300053

■ **Centris/Quadra** 610/660AV internal CD-ROM and front panel. Portrait grey-scale monitor (mint condition only) and/or cable. Clive ☎ 0181 692 8129

■ **14-inch Macintosh colour monitor**. Good condition and reasonable price! ☎ 01525 378439

■ **MacFormat CDs** 1 and 2 required to complete set. Reasonable price considered. Bristol, ☎ 0117 907 9362 after 6.30pm

■ **Games and educational software,** must be 3.5-inch disc. *PGA Golf 2*. Any others will be considered. John Kettering ☎ 01536 503975

■ **PowerBook** – 8Mb/500 minimum with FPU (maths coprocessor). Phone Jason ☎ 01223 336638 or e-mail Jason@Holyrood.ED.AZ.UK

■ **800K software** on disks for Mac SE and/or cheap drive for 1.44Mb disks for SE if possible. ☎ 01582 570556

■ **Laser printer** wanted. Preferably with manuals, Hewlett Packard or Apple 600dpi. Chris ☎ 0181 463 0717

Swap shop

Quay 2 *Illustrator 5.5* training CD-ROM to swap for *Director* or *FreeHand* training CD-ROMs or £25. Dorling Kindersley *World Reference Atlas* to swap for other Dorling Kindersley CD-ROM. Tim ☎ 0973 208471

Books and magazines

■ **MacFormats** – most issues with CD-ROMs – sensible offers please. ☎ 01424 722975

Help wanted

■ **Apple IIe and an Apple II Europlus** I would like to have any information anyone has on them. ☎ 01494 864643

Thematic Groups continued

■ **School Mac**: Gloucestershire. Contact Bill Henley on 01453 825422

■ **School Mac UG**: Cambridge. Contact Derek Smith on 01945 584146

■ **Special Needs UG (SNUG)**: contact Geoff Hughes on 01744 24608

■ **The British IIGS UG**: contact Peter Stark on 01223 838231

■ **Young Mac**: call 01795 535472

Others

Advertise your user group here. It need not be registered, but must be a non-commercial user group – just send us your full details and we'll do the rest.

■ **AppleEye BBS** (A FirstClass BBS) Modem numbers: 01234 822180 or 01234 826025. Address: PO Box 162, Oakley, Bedfordshire, MK43 7PA.

■ **Artists archive and news service:** contact The Research Station on 0181 778 6547 (24 hours) 38.4bps plus Web site at **http://www.metamute.co.uk/**

■ **Avid Mac user**, 14 year-old, would like to start user group with other teenagers in Hampshire and Surrey. Contact Kyle Alexander Productions "KAP". Call 01252 24207

■ **MacLin, E-lans MUG**: for info call +46 (0) 141 220330 or e-mail: omar@motala.mail.telia.com

■ **MacHelp**: non-profit helpbank for all Mac problems. Write to : MacHelp – Hermelynster 10, B2610, Wilryk, Belgium.

This listing is a free service for amateur, non-profit-making Mac user groups. MACFORMAT does not endorse or recommend any group and cannot be held responsible for any problems you might suffer as a result of contacting any of the groups listed here.

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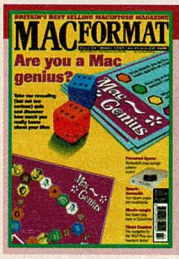

Issue 48 – March 1997

CD-ROM: *Claris Emailer* complete, demos of *QuarkImmedia, Caesar II, Nightingale, Jungle Activated!*
Disk: *CopyPaste, NS-Shaft* game, *MouseClick.*
Inside: Your Mac knowledge tested, removable storage, *Immedia* review.

Order codes:
CD-ROM MFCD48
HD Disk MFHD48

Issue 47 – February 1997

Double-CD special!
CD-ROM: *xRes 2.0 SE;* demos of *Picasso, Nascar Racing, Close Combat, Sheila Rae, mTropolis, golive.*
Disk: *Multimedia Animation, Breaker.*
Inside: Art software; input devices; ten top Mac problems; HTML editors.

Order codes:
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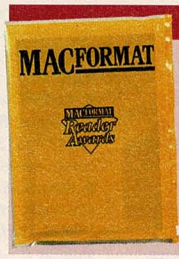


Issue 46 – January 1997

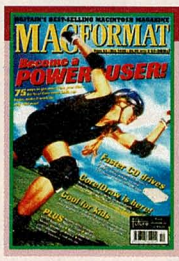
CD-ROM: *Media Paint, Actua Soccer, Marathon Infinity* and *ClickWorks* demos. Full *Internet Explorer 3.0.*
Disk: *Pacman; DiskList; Malph.*
Inside: Best products of 1996; The Mac in '97; PC-compatibility solutions; *Fractal Detailer;* Software RAID.

Order codes:
CD-ROM MFCD46
HD Disk MFHD46

Issue 45 – Christmas 1996

Free MacGamer supplement!
CD-ROM: 120Mb of video: clips, demos and utilities; *WarCraft II, Worms, Future Splash* demos.
Disk: *QuickEditor, Aaron, Bert.*
Inside: Pros' video secrets; graphics cards; *3D World 2;* PowerBook 1400.

Order codes:
CD-ROM MFCD45
HD Disk MFHD45



Issue 44 – December 1996

Double-CD special!
CD-ROMs: *Infopedia; IndyCar Racing 2, Planet Earth, Women's Rights,* 3D graphics for the Web, utility demos.
Disk: *InformInit; MacWorm; FreeRam.*
Inside: Over 75 ways to get more from your Mac; CD drives; *CorelDraw.*

Order codes:
CD-ROM MFCD44
HD Disk MFHD44

Issue 43 – November 1996

CD-ROM: *Marathon Infinity, Abuse, Director, Authorware, Muppets, Origins of Mankind* demos; artificial life suite.
Disk: *Snood* game, *MacTypingTutor.*
Inside: Artificial life; word processing vs DTP; storage media group test; *RAM Doubler 2, Overdrive* reviewed.

Order codes:
CD-ROM MFCD43
HD Disk MFHD43

Issue 42 – October 1996

CD-ROM: *Bryce 2; Descent 2; QuickTime 2.5;* science demos.
Disk: *Bricks* building sim; *Super Carz;.StartUpScreenManager.*
Inside: Definitive Mac and clone round-up; e-mail packages; *Infini-D 3.5; IndyCar Racing 2;* science CDs.

Order codes:
CD-ROM MFCD42
HD Disk MFHD42

Issue 41 – September 1996

CD-ROM: *Photoshop 3.0.5, Director 5.0, Hexen* demos; *Goo* movies.
Disk: *DeBabelizer Lite* complete; eight utilities.
Inside: Huge image manipulation feature; tests of scanners and digital cameras; *Let's KISS* spreadsheet.

Order codes:
CD-ROM MFCD41
HD Disk MFHD41

Issue 40 – August 1996

CD-ROM: complete *Myst* screen-saver; *UniQorn; Fontographer; BeyondPress 2; HexWeb.*
Disk: 16 System enhancers; *FlipSide.*
Inside: Text manipulation; 15- and 17-inch monitors tested; speakers tested; multimedia music titles.

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Issue 39 – July 1996

CD-ROMs: Sorry, no longer available.
Disk: *Skittles; Digital Address Book; Shards 1.3; Geogenius World; Rainbow Windows; Calendar Menu 3.01.*
Inside: Discover the Internet; *Extreme 3D, Ray Dream Studio, PhotoDeluxe; Spycraft, Flight Unlimited* reviewed; Fax-modems round-up and reviews.

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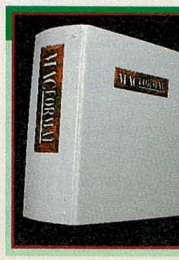
Issue 38 – June 1996

CD-ROM: *ClarisWorks 4.0* updater; *Live Picture; X-Wing; Ice & Fire.*
Disk: Print utilities; freeware fonts; *Flippers; Biorhythms; Munchies.*
Inside: Perfect printing made easy; colour printers reviewed; *Live Picture 2.5; xRes 2.0; Bryce 2.*

Order codes:
CD-ROM MFCD38
HD Disk MFHD38



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MACFORMAT

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ABC **MACFORMAT'S circulation is independently audited by the Audit Bureau of Circulations**
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Name & number – Tiny Zone!

Hello and welcome again to Tiny Zone, the section of MACFORMAT that really counts. We've been talking numbers in the office this month – like our new audited circulation figure just above, which confirms us as still Britain's best-selling Mac magazine. Our UK circulation has actually risen... by the grand sum of 12 copies. So, er, welcome aboard to those 12 new readers! Numbers are funny though. Apple's market share, for instance, fell in the last quarter of 1996, yet more Mac OS computers were sold than ever before. At least System versions are still code-*named*, not just numbered. After Harmony and Rhapsody, we think it should be Symphony and Melody, then Destiny, after the Angels. Then Serendipity, followed by Impossibility and Unpredictability. Then maybe a break for Afternoon Tea, then probably Incompatibility, and Senility...

Next Issue

Apple is 21 years old! But what's ahead?

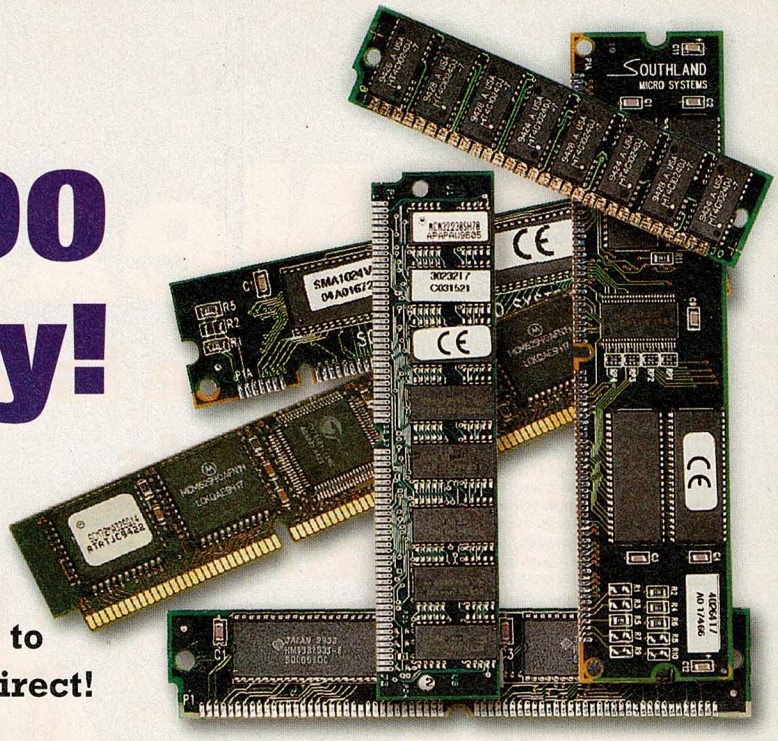
We look back at 21 eventful years of the firm behind the Macintosh, assess the state of the Mac today and preview what's ahead – new versions of the Mac OS, at least 21 new Mac-clone makers, more power, more value and more choice than ever before...!

Plus

- System 7.6 tested – is it worth paying for?
- Minimise conflicts, maximise RAM and trim down your System with our definitive, up-to-date guide to what's in your System folder
- Should your next Mac be an Apple or a clone? An unbiased head-to-head...
- QuickTime on the Internet, plus how to get more from FileMaker Pro 3 and AppleScript
- The latest news, authoritative reviews, the definitive Mac buyer's guide and much more!
- Oh, and it's our 50th issue too, so maybe a few surprises...

MACFORMAT 50 goes on sale in the second week of April. Reserve your copy with your newsagent now, or turn to page 115 for our special subscription offers

Win £1,000 of memory!



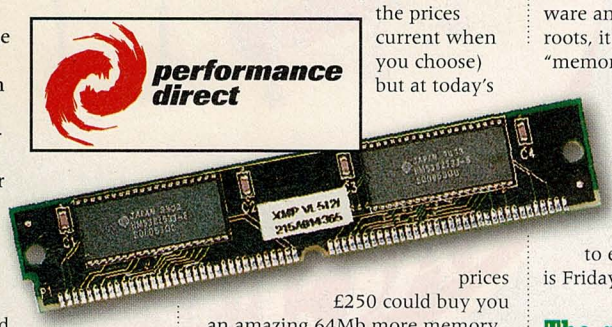
Whatever you do with your Mac, more RAM will help you get more from it! We have four prizes of £250 worth of memory upgrade products to be won, courtesy of Performance Direct!

Imagine what more RAM could mean to you – the ability to run more applications, saving you the time-consuming task of quitting one and waiting while the next one loads; room to launch those huge RAM-guzzling programs or open those really big graphics in *Photoshop*; faster performance, as your Mac can hold more data in memory rather than read it off the hard disk...

Or maybe you'd like some extra VRAM, so you can display more colours on screen, at higher resolutions. Or how about a Level 2 RAM cache, which can boost your Mac's speed by 15% to 20% at a stroke?

Well, you could win your choice of memory upgrade products to the value of £250 (inc VAT) from leading specialists Performance Direct!

Your Mac's performance can be transformed with extra memory, as you'll see in our feature starting on page 52. Memory prices do tend to fluctuate (and the prize will be at the prices current when you choose) but at today's prices £250 could buy you an amazing 64Mb more memory, if your Mac can take that much – or whatever combination of Performance Direct memory upgrade products you choose to the value of £250. Can't tell RAM from rum? Not sure whether you want SIMMs or DIMMs? Performance Direct will also give you expert advice to help you make the best choices for your particular machine and your needs.



Established in 1992, Performance Direct is a successful Mac reseller which has grown from a memory- and storage-based background to include a complete range of hardware and software. But, true to its roots, it remains a self-confessed "memory specialist" with a commitment to customer service.

To win one of these great prizes, all you have to do is answer the easy questions below and send us your answers by mail or phone – see the "How to enter" box. The closing date is Friday 18 April 1997.

The questions

1. What is VRAM?
(a) Very Ruggedly Accessorised Macintosh
(b) Video RAM
(c) Vodka and Rum After Midnight

2. When was Performance Direct established?
(a) 1982
(b) 1990
(c) 1992

3. What will adding more RAM *not* do for your Mac?
(a) Enable it to run more applications at once
(b) Enable you to open bigger graphics files in *Photoshop*
(c) Enable it to make your tea

SIMMs, DIMMs, DRAM, VRAM – win your choice of memory upgrades!

The rules

1. You must send us your entry by midnight on Friday 18 April 1997.
2. Employees of Performance Direct, Future Publishing and associated companies or their agents, and their families, may not enter.
3. Multiple entries are not allowed.
4. The editor's decision is final, no correspondence will be entered into and there are no cash alternatives. No purchase is necessary. **MF**

Send this coupon (or a photocopy) to:
Performance Direct Competition, Macformat, PO Box 494, Coventry CV3 1YT

Title ..... **First name** .....

Surname .....

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Date of birth ..... **Sex:** .....

Mag code: MCF

Your answers

1 (circle one) **(a) (b) (c)**

2 (circle one) **(a) (b) (c)**

3 (circle one) **(a) (b) (c)**

To help us improve the magazine, please answer the questions below. You will be entered into the competition even if you choose not to answer them.

Do you already subscribe to MACFORMAT? ❑ Yes ❑ No
Where do you use a Mac most often? ❑ Home ❑ Work
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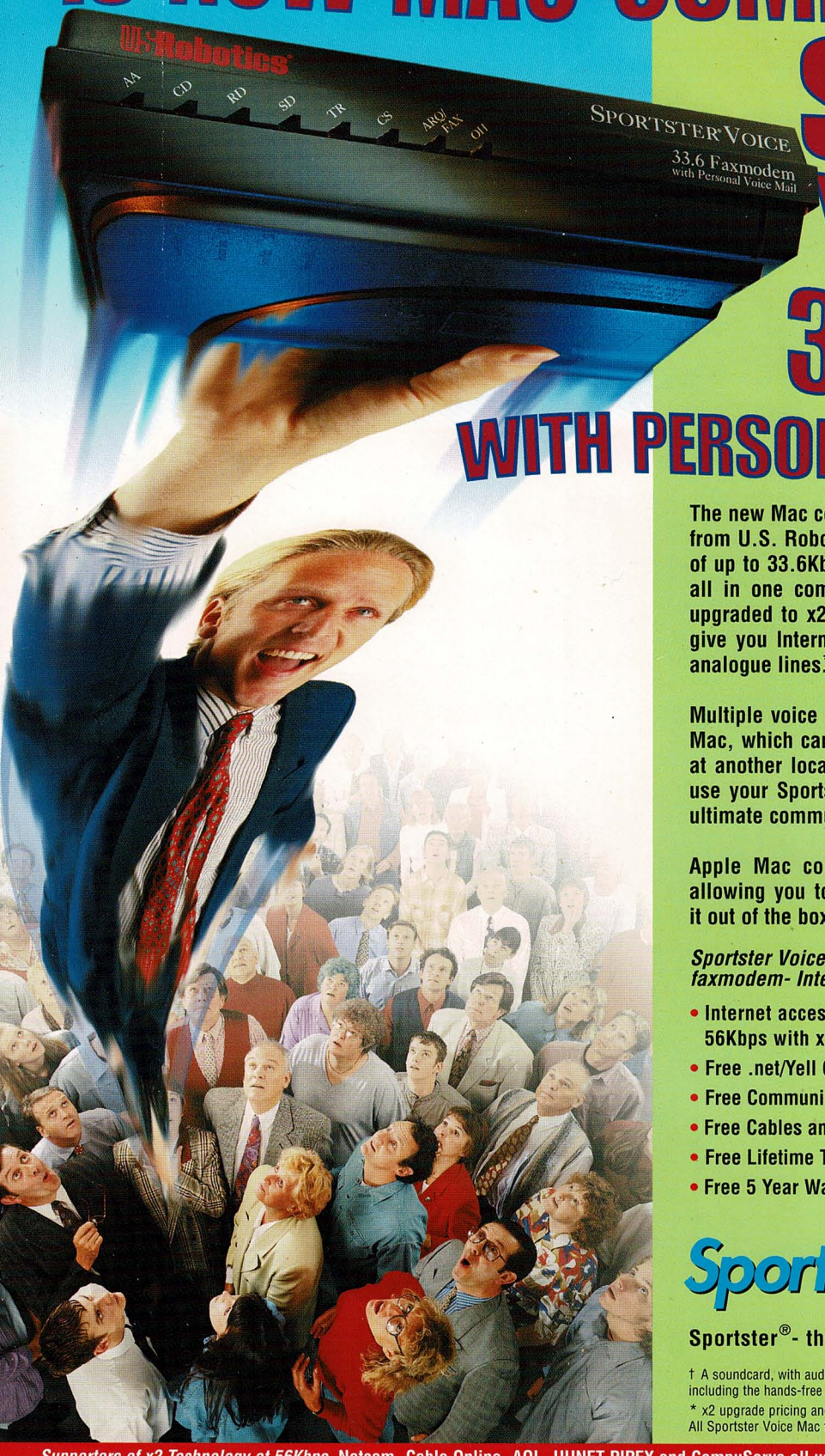

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